

DO THE ATTRIBUTES OF ORGANIC
CHICKEN INFLUENCE THE
WILLINGNESS TO PAY OF
ORGANIC CHICKEN?

*The influence of
attributes on
consumers
purchase intention
of organic chicken.*

Do the attributes of organic chicken influence the willingness to pay of organic chicken?

The influence of attributes on consumers purchase intention of organic chicken.

Master Thesis

Pieter van der Ven

Student number 402415

Supervised by Chen Zhou

MSc. Economics and Business

Specialization Marketing

Erasmus School of Economics

Erasmus University Rotterdam

July 2014

Abstract

Companies have come to realize that organic food does not only contribute to the environment and society but when it is managed properly organic food can also help the company's image and position in the market, with the consequence of better sales and profits.

The aim of the paper is to identify the key attributes and moderators that influence consumers' willingness to purchase organic chicken. In order to make clear what the topic is in this study, the following research question was developed:

'How do the consumers value the key attributes of organic chicken and what is the influence of moderating factors on those attributes valuations and the willingness to pay for organic chicken?'

In order to test the main research question empirically, the well-known research method called 'multiple regression model' was used. A questionnaire was used to collect the data. The online survey was activated on the 15th of May and closed on the 21th of May. In that time period 688 respondents completed the questionnaire online or hard copy. From all the respondents 88 did not complete all the survey questions. The final dataset consisted of 600 respondents.

In the end it turned out that the most important attribute where consumers look at when they make the decision between buying a conventional chicken or an organic chicken is the price, and the attribute environmentally friendly becomes more important when consumers look for organic chicken with more stars. The demographic features, gender, age, income and education did not have a significant effect on the evaluation of the key attributes of organic chicken. The psychological feature environmental concern did have a have a significant effect on the evaluation of the key attributes of organic chicken. Consumers with high environmental concern are willing to pay more for the attribute environmentally friendly than consumers with lower environmental concern. Consumers with high environmental concern are willing to pay less for the attribute nutrition of organic chicken with three stars.

Contents

1. INTRODUCTION	6
2. THEORETICAL BACKGROUND	11
2.1 Organic products	11
2.2 Theory of onsumption values.....	13
2.2.1 Functional value	14
2.2.2 Social value	14
2.2.3 Emotional value	14
2.2.4 Epistemic value.....	15
2.2.5 Conditional value.....	15
2.2.6 Consumption values are driven by circumstances	15
2.3 Main attributes influencing consumers choice for organic chicken	16
2.3.1 Attribute nutrition (health)	16
2.3.2 Attribute taste	17
2.3.3 Attribute environmentally friendly	17
2.3.4 Attribute price	18
2.4 Psychological factor moderates consumers choice for organic chicken.....	18
2.4.1 Environmental concern	19
2.5 Age moderates consumers choice for organic chicken.....	19
2.6 Gender moderates consumers choice for organic chicken	20
2.7 Conceptual model	21
3. METHODOLOGY.....	22
3.1 Choice of product category	23
3.2 Variables	24
3.3 Data collection.....	26
3.4 Statistical modeling	28
4. RESULTS	30
4.1 Factor analysis	30
4.2 Descriptive statistics.....	31
4.3 Testing the hypotheses	33
4.3.1 Model 1.....	33
4.3.2 Model 2.....	37
4.3.3 Model 3.....	39
4.3.4 Summary of hypotheses.....	40

4.4	Characteristics of high environmental concern consumers.....	41
5.	Conclusion	42
5.1	Discussion of the results.....	42
5.2	Scientific implications.....	45
5.3	Managerial implications	45
5.4	Limitations and directions for future research	46
	Bibliography.....	47
	APPENDICES.....	51
	Appendix 1: Survey	51
	Appendix 2: Factor analysis	55
	Appendix 3: Descriptive statistics	58
	Appendix 4 : Transformations for linear regression	59
	Appendix 5: Results of model 1	60
	Appendix 6: Results of model 2	63
	Appendix 7: Results of model 3	66

1. INTRODUCTION

This chapter 'Introduction' will start with the background of the study. After that, the current market of organic food will be described, followed by the research questions and sub questions of this research. At last, managerial and scientific relevance and the structure of this thesis will be presented.

During the last few decades green food products, also known as organic food, have been (and still are) growing in interests rapidly. More often consumers are able to purchase organic food in supermarkets. Consumers used to go to specialty stores when they wanted to purchase organic food but nowadays the assortments of supermarkets are growing with organic options for all kinds of products, for instance jam, honey, meat, chocolate, fruit, vegetables, milk and eggs. Transparency Market Research published a new market research report "Organic Food and Beverage Market – Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2013 – 2019". According to that report, the demand for organic food and beverages worldwide was valued at 70.7 billion US dollars in 2012 and is expected to grow to 187.85 US dollars in 2019. Companies have come to realize that organic food does not only contribute to the environment and society but when it is managed properly organic food can also help the company's image and position in the market, with the consequence of better sales and profits. One example of the rise of organic products is found in the coffee market. In 1988 the first packet of coffee gets the label of fair trade from Max Havelaar in the Netherlands. The Max Havelaar foundation is an independent non-profit organization that licenses use of the Fairtrade Certification Mark on products in the Netherlands in accordance with internationally agreed Fairtrade standards (Max Havelaar, 2014). 22 years after the first introduction of fair trade coffee in the Netherlands, the American company 'Starbucks' sells only fair trade coffee (since 2010). Today in the coffee and chocolate market, companies have to make their products 'green' otherwise they lack behind by their competitors.

All companies are always looking for new upcoming markets where they can differentiate themselves from the competitors and serve new customers and/ or preserve their existing customers. So also in the food industry companies are looking for new opportunities to serve their customers. For organic food the market is broadly segmented into organic fruits and vegetables, organic meat, fish and poultry products, organic dairy products (milk, yoghurt, cheese, butter and ice cream), organic frozen and processed food and others (condiments, tofu, sweeteners and seasonings). Organic fruits and vegetables accounted for more than 36% share of the organic market, organic dairy products accounted for 28% share of the market and organic coffee and tea accounted for more than 35% share of the global organic beverages market (Transparency Market Research, 2013). Organic meat, fish and poultry products occupied a very small share in the current market but are expected to exhibit the fastest growth rate among other segments (Transparency Market Research, 2013). Pei-Chun Lin also

confirms that despite a lot of marketing effort the market share of organic meat, especially the fish and poultry segment, is relative low (Lin & Huang, 2011). Particularly a lot of marketing effort goes to the broiler chicken without the desired results. In order to stop the production of broiler chicken, companies need to know how much consumers are willing to pay for organic chicken and what influences the willingness to pay for organic chicken. How far should companies go with making their chickens organic in order to get a good return on investment? To what extent do consumers look at the taste, the nutrition or the welfare of the organic chicken? These are questions that will be answered in this study. The aim of the paper is to identify the key attributes and moderators that influence consumers' willingness to purchase organic chicken. In order to make clear what the topic is in this study, the following research question was developed:

'How do the consumers value the key attributes of organic chicken and what is the influence of moderating factors on those attributes valuations and the willingness to pay for organic chicken?'

For answering the research question, several sub-questions were developed. On behalf of the existing literature and/or empirical evidence the sub-questions will be answered. The following sub-questions were developed:

1. What does the definition 'organic' mean in general and for chicken specifically in the context of this research?
2. What are the key attributes consumers' value by making a purchase decision for organic chicken?
3. How do the consumers value the key attributes of organic chicken by making a purchase decision?
4. What are possible psychological factors that can influence the consumers attribute valuations of organic chicken?
5. What demographic features will moderate the relation between the attributes of organic chicken and the willingness to pay for organic chicken?

In order to test the main research question empirically, the well-known research method called 'multiple regression model' will be used. Multiple regression analysis is a technique which is used to determine the causality between one dependent interval- or ratio-scaled variable (the explained variable) and multiple independent interval- or ratio-scaled variables (the explanatory variable), in other words, one tries to explain the variation in one dependent variable as much as possible on the basis of the variation in a number of relevant independent variables (Janssens, Wijnen, De Pelsmacker, & Van Kenhove, 2008). The multiple regression model requires a continuous dependent variable, for instance customer satisfaction, market share or product evaluation (Vocht, 2010). In this research the

continuous dependent variable is the willingness to pay for organic chicken and the independent variables will be the key attributes of organic chicken. A linear regression model in its general form is expressed as follows:

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + \varepsilon$$

Where Y = dependent variable

X_i = independent variable

b_i = parameter to be estimated, coefficient

ε = disturbance term

Besides the primary research goals 'attributes', 'psychological factors' and 'demographics', in order to make sure that the analyses is complete and accurate, there will be looked at the control variable price as well. Research has shown that price has a significant influence on the willingness to pay for organic food (Boccaletti & Moro, 2000).

Consumer research recognizes environmental concern as a characteristic that influences all phases of the decision making process (Laroche, Bergeron, & Forleo, 2001). Besides environmental concern, a positive correlation is found between age and environmentally friendly behaviour (Kilbourne & Pickett, 2008). The study of Ross, Patterson and Stutts (1992) has identified gender differences in the way people engage in helping and supporting others, which might result in different shopping behavior between men and women for organic food. The above mentioned factor; environmental concern, age and gender, will therefore be further investigated and reviewed in more detail in the following chapters. There are no good qualitative studies found that look at attributes of food products but there are studies found that looked at why consumers buy organic food. The reasons why consumers buy organic food are primarily because of health, taste and concern of animal welfare and the environment (Renee, Pierre, & Andrea, 2007). Therefore the attributes health (nutrition), taste and environmentally friendly are used as independent variables. The independent variable price is added as control variable as stated before.

The results of this research can be very useful for both the scientific and managerial areas. While a lot of research about consumers' purchase decisions is done, organic products change those decisions processes of consumers. Organic food brings new psychological factors that influence the purchase decision. The conclusions of this research will allow academicians to further understand additional drivers of organic chicken purchase decisions, such as

environmental concern, age and gender that consumers can have. A lot of research is done on psychological factors that influence organic purchase decisions (Batte, Hooker, Haab, & Beaverson, 2006) (Cheah & Phau, 2011) and a lot of research is done on the reasons for consumers to purchase organic food (Renee, Pierre, & Andrea, 2007). No study looked at which food attributes consumers consider during their purchase decisions and what the influence is of psychological and demographic factors in that process. This research will provide information about the correlation between attributes preferences and the willingness to pay for organic food products, in this case chicken, and the influence of psychological and demographic factors on those correlations. The results of this research can also be used by companies and non-profit organizations. Companies that produce organic food can get a better understanding of consumers' willingness to pay for each key attribute of organic food. Besides, they get a better understanding of the psychological characteristics of current and/or potential customers which allows them to better serve their customers' wishes. Non-profit organizations could also benefit from this research. For instance non-profit organization 'Wakker dier' puts its efforts in improving the lives of animals in the Netherlands. Currently they are broadcasting a campaign about the broiler chicken. The goal of the campaign is to make people aware of the horrible life a broiler chicken lived before it ends up on your dining table. The conclusion of this research gives 'Wakker dier' information about what kind of consumers they need to approach and which product attributes are important to them. So that they will get an answer to the question: Should they make consumers aware of the horrible life a broiler chicken had or should they tell them about the antibiotics that are in the broiler chicken? Non-profit organizations can use their limited resources a little bit more effective in order to reach their goals with this research. Understanding the trade-offs that consumers are willing to make for purchasing an organically produced food product, will help managers understand what trade-offs they should make when developing their products and marketing campaigns, so that they can maximize its efficiency. Besides the fact that this will contribute to increasing the return on investment, it will also help to increase the customer loyalty and brand image of the company or organization. Additionally, but not less important, it can allow a company to differentiate themselves or its products from the competitors, which is basically the tasks and the largest challenge for a marketer.

The research will have the following structure: The upcoming chapter will explain the theoretical framework of the research. The techniques that are used to collect the data will be shown and explained in the chapter 'methodology'. After the methodology the results will be

presented and discussed. The final chapter will include the conclusion with the implications of the research and recommendations for further research.

2. THEORETICAL BACKGROUND

The purpose of this chapter is to create the theoretical framework and finding theoretical arguments for developing the hypotheses. Quite a lot of research is performed on the psychological factors that influence the reasons why consumers purchase or do not purchase organic food products. With this in mind, it is useful that the theoretical background is based on the readings of the previous studies that are published and relevant for the topic of this paper. By following a ‘top-down’ process this chapter will kick off with some general information about organic food. There will be a short explanation of what organic food really means, how companies can benefit from organic food, what the size of the organic market is today and there will be a short explanation what organic chicken means. After that, the focus will shift from the product to the consumers. The theory of consumption values will explain which values consumers have when they make certain purchase decisions. After a general introduction of the theory of consumption values the focus will be on the functional values of consumers. Here the product attributes of the chicken that will be analysed in this paper are introduced. When the functional values of consumers are explained, the psychological and demographic influences (moderators) will be examined in detail. This part will explain why certain moderators are chosen. At the end of this chapter a visual representation of the hypotheses will be drawn in a conceptual model.

2.1 *Organic products*

First it is important to make clear what we really mean with organic products. The words ‘green’, ‘ethical’ and ‘organic’ are often used in the literature but do not always mean the same thing. According to the Organization for Economic Cooperation and Development (OECD, 2009), green products reflect what is achieved to prevent, limit, reduce, or correct harmful environmental impacts on water, air and soil; they constitute at least one means of resolving problems related to waste, noise and general detriment to the ecology, and are an avenue for generating beneficial products and services. According to Uusitalo & Oksanen (2004), ethical consumerism refers to buyer behavior that reflects a concern with the problems that arise from unethical and unjust global trades, such as child and low-paid labor, infringement of human rights, animal testing, labor union suppressions, inequalities in trading relations with the Third World and pollution of the environment (Strong, 1996). As seen above ‘green’ and ‘ethical’ cannot be used as synonyms. By ‘green’ the focus is on the environment (water, air and soil) and ‘ethical’ focuses on human and animal rights. In this paper the focus is on both the environment and animal rights and therefore we need a mix of both definitions. The word that has the best definition for what is meant in this paper is ‘organic’.

The word ‘organic’ is also defined differently in different jurisdictions, the general term ‘organic farming’ responds to site-specific farming and crop conditions by integrating cultural, biological and mechanical practices that foster recycling of resources, promote ecological balance and conserve

biodiversity. Synthetic pesticides and chemical fertilizers are generally not allowed, although certain organically approved pesticides may be used under limited conditions. In general, organic foods are also processed without using irradiation, industrial solvents or chemical food additives (Lin & Huang, 2011).

Organic foods are food products that can only be produced by the methods that are defined as organic farming. The European Union, Canada, Japan, Mexico, the United States and many other countries have rules that require organic farmers to obtain certification when they mark food as organic. In this way consumers know if food products are produced in a way that meets the standards set by international organizations and national governments. Therefore the organic food market is a heavily regulated and controlled industry.

Most consumers believe that organic food is healthier, has a better taste, is better for the environment and has a better quality (Foster, 2005). Little research is done to check if these beliefs are really accurate. Studies comparing the nutrient composition of organic and non-organic foods are limited in number, and there is a lack of good-qualitative research in this area. The few studies that are performed on nutrition of organic food reported little differences in nutrient composition between organic and non-organic foods, although there is some evidence that organically produced potatoes and leafy vegetables may have higher vitamin C content and lower nitrate levels (Williamson, 2007). Research of multiple food products is needed to really find out if organic food has a better nutrition than non-organic food. The beliefs about taste and quality also need further research in order to conclude that they are accurate. But despite it is not proven that organic products have better nutrition, taste and quality people buy them for that reason.

Nowadays heavy competition and very small margins on mature products, makes retailers search for the 'next big thing' in order to generate higher margins (Bezawada & Pauwels, 2013). Organic food products are one of those products that can generate higher margins for retailers, other possibilities are ready-to-serve entrées, health and wellness products (e.g. food supplements and weight loss bars) and private labels (Food Marketing Institute 2009). Retailers hope that selling and promoting of organic products will increase total category margins and store revenues, in addition to enhancing stores' long-term image, equity, and differentiated positioning (Chain store age, 2009). The gross margins of organic (food?) products are 30% to 50% versus 20% to 25% for conventional products (Roheim & D'Silva, 2009).

According to Transparency Market Research report 'Organic Food and Beverage Market – Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2013 – 2019' the demand for organic food and beverages worldwide was valued at 70.7 billion US dollars in 2012 and is expected to grow

to 187.85 US dollars in 2019. The consumer demand for organic products is concentrated in North America and Europe; these two regions comprise 96 percent of global revenues in 2009 (IFOAM, 2012). The financial crisis has had a negative impact on the global market for organic products, however, preliminary research finds that growth continued in 2009 in spite of the poor economic conditions (IFOAM, 2012). The sales of organic products have grown 17%-21% in 2008 and 2009, compared with a growth of 2% - 4% of conventional products (Bezawada & Pauwels, 2013).

As mentioned before, this paper will focus on organic chickens. Today consumers are able to buy 4 different types of chickens in the retail stores in the Netherlands; the accepted chickens (meets the basic criteria of animal welfare), one star chickens (indoor spillway), two stars chickens (outdoor spillway) and three stars chickens (more overall space and less treatments). The stars are given by the quality mark 'Beter leven'. Beter leven is a Dutch quality mark established by the animal protection organization 'Wakker dier'. They developed a star system which means the more stars a product has the better it is for the animal's well-being. The chicken with one or more stars are labeled as organic chicken in this paper.

2.2 *Theory of consumption values*

The theory of consumption values is developed to better understand why consumers make certain buying decisions. The theory focuses on consumption values, explaining why consumers make decisions to buy or not buy (or to use or not use) a particular product, why consumers choose one specific product type over another product type, and why consumers choose one brand over another brand. The theory is proven to be applicable to choices involving a broad range of product types (consumer nondurables, consumer durables, industrial goods and services).

The theory of consumptions values knows three fundamental propositions that are axiomatic:

1. Consumer choice is a function of multiple consumption values.
2. The consumption values make differential contributions in any given choice situation.
3. The consumption values are independent

The theory has been employed and tested in more than 200 applications, and has demonstrated consistently good predictive validity (Sheth, Newman, & Gross, 1991).

The consumer choice behavior is influenced by five consumption values that are identified by the theory of consumption values. The five consumption values are: functional value, social value, emotional value, conditional value and epistemic value. A consumer's purchase decision process may be influenced by only one or perhaps all of the five consumption values (Sheth, Newman, & Gross, 1991). There will be a short explanation for each of the five consumption values.

2.2.1 Functional Value

The functional value of an alternative is defined by Sheth, Newman and Gross (1991) as:

‘‘The perceived utility acquired from an alternative’s capacity for functional, utilitarian, or physical performance. An alternative acquires functional value the possession of salient functional, utilitarian, or physical attributes. Functional value is measured on a profile of choice attributes’’.

The primary driver of consumers’ choice is traditionally the functional value. A reason to choose a product over another product can derive from its characteristics or attributes, such as durability, reliability and price. An example is the decision to buy a particular television based on the color and resolution of the screen.

2.2.2 Social Value

The social value of an alternative is defined by Sheth, Newman and Gross (1991) as:

‘‘The perceived utility acquired from an alternative’s association with one or more specific social groups. An alternative acquires social value through association with positively or negatively stereotyped demographic, socioeconomic, and cultural-ethnic groups. Social value is measured on a profile of choice imagery’’.

Product choices that are often driven by social value involve products that are highly visible (e.g. jewellery, clothing) and goods or services that people give or share with other (e.g. gifts, products used in entertaining). For instance, a particular television brand may be chosen more for the social image evoked than for the functional performance of the television.

2.2.3 Emotional Value

The emotional value of an alternative is defined by Sheth, Newman and Gross (1991) as:

‘‘The perceived utility acquired from an alternative’s capacity to arouse feelings or affective states. An alternative acquires emotional value when associated with specific feelings or when precipitating or perpetuating those feelings. Emotional value is measured on a profile of feelings associated with the alternative’’.

Emotional responses are frequently associated with goods and services (e.g. the romance aroused by a candlelight dinner, the fear aroused while viewing a horror movie). Emotional value is often associated with aesthetic alternatives (e.g. religion, causes). However, more material and seemingly utilitarian products also have emotional value. For instance, some kinds of food give people the feeling of comfort through their association with childhood experiences. Sometimes people say to have a ‘‘love affair’’ with a product, for instance a car.

2.2.4 Epistemic Value

The epistemic value of an alternative is defined by Sheth, Newman and Gross (1991) as:

‘The perceived utility acquired from an alternative’s capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge. An alternative acquires epistemic value by questionnaire items referring to curiosity, novelty and knowledge’.

Epistemic value certainly comes from entirely new experiences. However, an alternative that provides a simple change of pace can also be imbued with epistemic value. The alternative may be chosen because the consumer is bored or satiated with his or her current brand (trying a new brand of beer), is curious (as in visiting a new bar), or has the desire to learn (as in experiencing another culture).

2.2.5 Conditional Value

The conditional value of an alternative is defined by Sheth, Newman and Gross (1991) as:

‘The perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker. An alternative acquires conditional value in the presence of antecedent physical or social contingencies that enhance its functional or social value. Conditional value is measured on a profile of choice contingencies’.

An alternative’s utility will most of the time depend on the situation the person is in. For instance, some products or services have only value in particular seasons (e.g. Christmas cards), some are associated with ‘once in a lifetime’ events (e.g. wedding gown), and some are only needed in emergency cases (e.g. hospital service). However, a lot of products have more subtle conditional associations (e.g. popcorn at the movies).

2.2.6 Consumption values are driven by circumstances

The choices consumers make within a single product class, the brand, product type and ‘buy or not buy’ may be driven by completely different consumption values. So the consumption value that has the highest influence on the decision process is choice- or application-specific. For instance, the decision if a person is going to move out of his parents’ home and buy or not buy a house (a ‘buy versus no buy’ choice) involves a different set of consumption values as compared with the decision to buy a condominium versus a single-family home (a product type decision).

Sheth, Newman and Gross did research to find out which consumption values influence the consumers choice the most when they make ‘buy or not buy’, product type and brand choices. In their research they looked at smoking cigarettes. Their results showed that the emotional value is the most influential in discriminating the smokers from the non-smokers (‘buy or not buy’). In this paper we focus on chicken and therefor is the ‘buy or not buy’ situation less interesting because almost everyone eats and therefore buys chicken. For the second situation, product type, Sheth, Newman and Gross tested the

choice between filtered versus non-filtered cigarettes. The results showed that the two most discriminating factors are functional value and social value. When they generalized their findings to the entire cigarette market, parties hoping to influence choice between filtered and non-filtered product types should emphasize salient functional concerns and social associations. The choice between organic chicken and conventional chicken is also a product type choice. Therefore the main focus of this paper will be the functional and social value of organic chicken. The last situation that Sheth, Newman and Gross analysed was the brand choice between Marlboro versus Virginia Slims smokers. The results indicated that the social value literally overwhelms the other consumption values. Empirical results indicated that consumers, if there are any brand choices between chicken, rarely look at the brands behind the chicken (Renee, Pierre, & Andrea, 2007). Therefore there will be no focus on the brand choice situation in this research. Based on the theory of consumption values this paper will continue to focus on the functional value and social value of organic chicken.

2.3 Main attributes influencing consumers choice for organic chicken

As mentioned earlier, the primary driver of consumers' choice between product types is the functional value. In this research different product types of chicken (e.g. organic or non-organic) will be examined. That means that a reason to choose a chicken over another chicken can derive from its characteristics or attributes. If the price of a chicken seems too high, a trade-off may be made as the consumer weights factors other than price in the product selection and decision, but research trends indicate a lack of willingness to pay premium prices for green products (D'Souza, Taghian , & Lamb, 2006). Bei and Simpson (1995) indicated that consumers consider both the price and quality of recycled products. The quality of a chicken consists off course of multiple attributes (e.g. taste, smell, shelf life). There are no studies found that look at those attributes and explained which attributes are most important for the consumers. In order to decide which attributes are needed for this research, studies about why consumers buy organic food are looked at. Consumers buy organic food primarily because of health, taste and concern of animal welfare and environment (Renee, Pierre, & Andrea, 2007). Therefore the attributes nutrition, taste and environmentally friendly will be further discussed.

2.3.1 Attribute nutrition (health)

In 2004, 66% of the people in England believed that organic food products are better for the humans' health than conventional food products (Foster, 2005). They think that, because organic chicken is grown without pesticides and chemical fertilizers. This contributes that organic chicken has no or less negative effects on their health and has better nutrition than conventional food. Whether this

assumption is true or not, will not get any attention in this paper and further research is needed to answer that question. The first attribute of the chicken is defined as 'nutrition (health)'. The following hypothesis is developed for this study:

H1: There is a positive relationship between nutrition (health) and consumer willingness-to-pay for organic chicken.

2.3.2 Attribute taste

In 2004, 49% of the people in England believed that organic food products taste better than conventional food products (Foster, 2005). In retail stores and butcher's shops the butcher often tells his customers that the organic chicken tastes better than the conventional one. If this is really true or not has never been proven. A butcher may say that organic chicken tastes better because of the higher margin on the organic chicken. Further research should find out if organic food really tastes better or not. Because consumers believe that organic chicken tastes better than conventional chicken, and therefore have a reason to buy it, the second attribute is defined as 'taste'. The following hypothesis is developed for this study:

H2: There is a positive relationship between taste and consumer willingness-to-pay for organic chicken.

2.3.3 Attribute environmentally friendly

In 2004, 78% of the people in England believed that organic food products were better for the environment and wildlife. The term 'environmentally friendly' involves making decisions and taking action that are in the interests of protecting the natural world, with particular emphasis on preserving the capability of the environment to support human life. In this paper the better animal welfare also includes 'environmentally friendly'. The third attribute will be defined as 'environmentally friendly' because 'environmentally friendly' is one of the main reasons that consumers buy organic chicken. As said before there are different levels of environmentally friendly chicken (1, 2 or 3 stars of the quality mark 'Beter leven'). The prediction is that consumers get a higher utility from chickens with 3 stars than from chickens with 1, 2 or no stars. Therefore the following hypothesis is developed for this study:

H3: There is a positive relationship between environmental friendliness and consumer willingness-to-pay for organic chicken.

2.3.4 *Attribute price*

When it comes to product related research, price is one of the most traditional product attributes. Applying basic economics principles leads, for any normal goods, to expect that price will have a negative effect on consumer choice. In other words, it is assumed that when price level is higher, the utility of choosing a product will decrease. The question of interest in this research is whether the price level of an organic chicken has any effect on the choice of the consumer. The literature review concluded that price is not a reason why consumers buy organic food products, but it can be a reason why consumers do not buy organic food products. As mentioned before, price is one of the most traditional product attributes consumers look at and therefore price is the control variable in this research. The higher price of organic chicken could also be the explanation for the conviction of consumers of better taste and nutrition. The following hypothesis is developed for this study:

H4: There is a negative relationship between price and consumer willingness-to-pay for organic chicken.

2.4 *Psychological factor moderates consumers choice for organic chickens*

Psychological information about consumers has received a lot of attention within the context of environmental marketing (Laroche, Bergeron, & Forleo, 2001; McCarty and Shrum, 1994).

Psychological factors include attitudes, interpersonal influences, level of knowledge in a specific area and values.

Social cognitive theory defines human behavior as a triadic, dynamic and reciprocal interaction of personal factors, behavior and the environment (Bandura, 1977, 1986, 1989). The theory suggests that the dynamic interplay of personal, behavioral and environmental influences uniquely determines human functioning (an individual's behavior) (Cheah & Phau, 2011). Furthermore, people are both products and producers of their environment (Bandura, 1977). A person's behavior influences the aspects of the environment to which they are exposed, and in turn that environment modifies the person's behavior. For example, the role of product knowledge or education (information derived from the environment) that affects a purchase decision (purchase evaluation) is of primary importance to consumers (Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen, 2003).

The way in which a person experiences the environment through selective attention can be affected by a person's behavior. Based on learned human preferences and competencies, individuals select who they interact with and the activities in which they participate from a vast range of possibilities. Therefore, behavior influences which of the many potential

environmental influences come into play, and which forms they take. In turn, the environment partly influences the development and activation of one's behavior (Bandura, 1977). What this means is that every consumer that wants to buy chicken looks at the attributes differently due to his own personal environment.

Therefore, this study will include the psychological factor; environmental concern as a moderating effect.

2.4.1 Environmental concern

Environmental concern denotes the general orientation of individuals toward the environment and their level of concern toward environmental issues (Choi & Kim, 2005). Owing to the increased prominence of environmental concerns and the subsequent efforts of governmental agencies, non-governmental organizations and local environmentalists to increase awareness of society's impact on the environment, environmentalism has become an important global phenomenon (Brown, 2008) (Manaktola & Jauhari, 2007). While consumers' environmental concerns have moved into mainstream marketing, it is useful to form a marketing perspective to investigate how consumers make informed choices about green products (D'Souza, Taghian, & Lamb, 2006). Social marketing literature views green consumer behavior as a form of ethically oriented consumer behavior that is motivated not only by consumers' own personal needs, but also by their concern for the welfare of society in general (Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen, 2003) (Osterhus, 1997). It has generally been found that there is a positive correlation between environmental concern and environmentally friendly purchasing behavior (Straughan & Roberts, 1999). The study proposes the following hypothesis:

H5: Price, taste, healthful/nutrition, environmentally friendly play a different role for high environmental concern consumer and low environmental concern consumers.

2.5 Age moderates consumers choice for organic chickens

Fransson and Garling (2000) developed the hypothesis that younger persons are more likely to buy organic food products than older persons. Van Liere and Dunlap (1980) proposed as a possible explanation for this, that younger persons are less integrated in the existing social order. Since solutions to environmental deterioration are often viewed as threatening to the current way of existence, it is logical to expect that younger persons are more likely to support actions against environmental deterioration than older persons. When Van Liere and Dunlap (1980) tested six attitudes towards the environment, four of them were negatively correlated with age.

Howell and Laska (2002) found on three different occasions in a sequential cross-sectional study, that younger persons expressed concern about environmental deterioration more often than older persons. A possible explanation of these results from studies, older than ten years, could be that older persons at that time did not receive information about environmental issues. Nowadays, with all the media attention, the issue could hardly escape anyone's attention. Therefore the differences between younger and older persons may have decreased but has probably not completely disappeared.

Research found that there is a significant overall effect between age and the ability to taste (Mojet & Heidema, 2001). They found that it is harder for older persons (60 – 75 years) to detect certain ingredients in food than it is for younger persons (19 – 33 years). This study therefore predicts that age influences the value of the attribute taste for organic chicken.

In the literature there are no good qualitative articles found about age and the concern with healthy food. On average younger people have less health problems than older people do. This could mean that younger people are less conscious about the importance of being healthy. Older people might be more aware of their health and therefore consume more healthy food. Based on those assumptions this study tries to find out if age influences the importance of the attribute nutrition (health).

The study proposes the following hypothesis:

H6: Price, taste, healthful/nutrition, environmentally friendly play a different role for older consumers than for younger consumers.

2.6 *Gender moderates consumers choice for organic chickens*

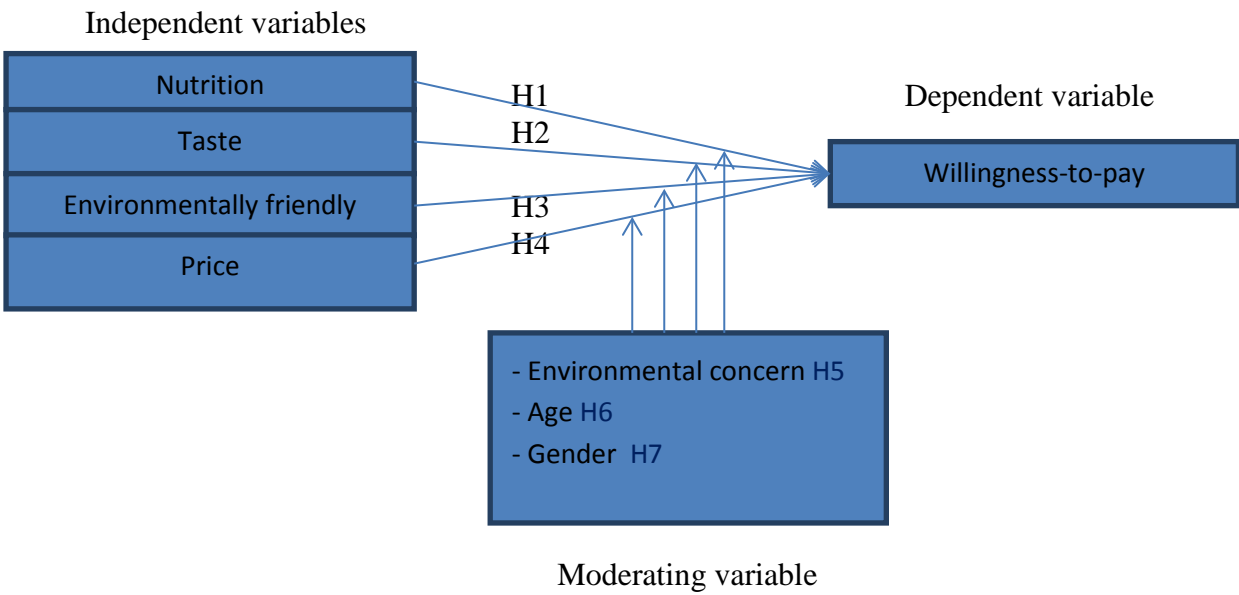
The literature shows different results about the relationship between gender and the willingness to behave in environmental friendly ways. Arcury and Christianson (1990) found that men were more environmentally concerned than women. Stern *et al.* (1993) and Stern *et al.* (1995) found, however, that women differed from men in that they expressed stronger intentions for pro-environmental action and had stronger beliefs about the detrimental consequences of environmental degradation. Other literature has identified gender differences in the way people engage in helping and supporting others (Ross, Patterson and Stutts, 1992; Berger, Cunningham and Kozinets, 1999), favouring women as more willing to behave in such 'pro-social' way. The researchers show that women are considered more comprehensive information processors, and thus are more likely to respond to both subjective and objective cues, while men tend to use heuristic processing and miss subtle cues. This leads to the assumption that women, being a better information processor, value the attributes nutrition and environmentally friendly different than men because they respond better to the information that is given.

The study proposes the following hypothesis:

H7: Price, taste, healthful/nutrition, environmentally friendly play a different role for women than for men.

2.7 Conceptual model

The 'conceptual model of consumer willingness-to-pay for organic chicken' incorporates four independent variables: price, taste, nutrition and environmentally friendly. The dependent variable is willingness-to-pay for green food products. In addition, three moderation variables, environmental concern and attitude are added to the model.



3. METHODOLOGY

This chapter will start with the research design of the study in paragraph 3.1. After that, paragraph 3.2 will talk about the product category organic chicken. Paragraph 3.3 will explain the meaning of each variable, followed by the method of data collection in paragraph 3.4. The last paragraph will focus on the statistical modelling behind the models that will be used.

3.1 *Research design*

As stated before in the introduction, the marketing tool that will be used to test the research question is the multiple regression analysis. A simple linear regression is used when there is only one independent variable, in this report there are four independent variables and therefore the extension of the simple linear regression is used; the multiple regression analysis. This analysis is used by marketers when they want to predict the value of a dependent continuous variable based on the value of two or more independent variables (Janssens, Wijnen, De Pelsmacker, & Van Kenhove, 2008). Compared to a simple regression analysis a multiple regression model can run many explanatory variables that may be correlated, which gives hope to infer causality in cases where simple regression analysis would be misleading. The multiple regression analysis is useful in this research because it can estimate the impact of selected product attributes on consumers choice for that particular product. Regression analysis is a technique that checks if there is causality between one dependent interval- or ratio-scaled variable (for instance willingness to pay) and one or more independent variables (for instance product attributes). In other words marketers try to explain the variation in one dependent variable as much as possible on the basis of the variation in a number of relevant independent variables (Janssens, Wijnen, De Pelsmacker, & Van Kenhove, 2008). A linear regression model in its general form is illustrated as follows:

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + \varepsilon$$

Where Y = dependent variable

X_i = independent variable

b_i = parameter to be estimated, coefficient

ε = disturbance term

In this study there are observations for several subjects for a single point in time and therefore a cross-section analysis is performed. The regression analysis will estimate the parameters for the variables (b) in such a manner that the best possible fit is obtained between the actual and predicted values for the dependent variable (Janssens, Wijnen, De Pelsmacker, & Van

Kenhove, 2008). The least squares method will determine these coefficients, which can be positive and negative. The parameters of the formula are developed in such a way that the sum of the square of each of the residuals, deviation between the actual and predicted value, is as small as possible. In determining the importance of each variable included in the model, it is possible to get in a situation in which keeping one or more variables in the model is no longer appropriate. With regard to this problem, there are various approaches to solve this problem and here is chosen to use the 'enter' method. In this method, all of the variables indicated by the researcher are included in the model. The researcher may then, after examining the analysis output, choose to eliminate variables which do not contribute significantly to the explanation of the model and then perform a second analysis on the basis of the 'enter' method. The significant variables work on a ceteris paribus condition. When there occurs a change in one variable, the other variables stay fixed.

In this study it is important to know how much of the variation in willingness to pay for organic chicken can be explained by the attributes: nutrition, taste, environmentally friendly and price, but also the 'relative contribution' of each independent attribute in explaining the variance. The multiple regression analysis is able to determine the overall fit of the model and the relative contribution of each of the predictors to the total variance explained.

The multiple regression analysis has also some disadvantages. The design of the questions does not match the real life decision making process. Respondents are asked to rate statements on a 7 point Likert scale. They have to imagine themselves in certain situations and think about how they behave in these situations. A disadvantage of this question design can be that respondents say that they agree with a statement, but they don't act like it in real life.

In order to develop a study that will provide reliable results, several steps need to be taken. Step one will be a short explanation why the specific product category is chosen. Secondly, all the variables will be discussed; dependent variable, independent variables and moderators. The third step will include the data collection and step four will present the statistical modeling.

3.2 Choice of product category

In the new market research report, 'Organic Food and Beverage Market – Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2013 – 2019', that is published by Transparency Market Research, the demand for organic food and beverages worldwide was valued at 70.7 billion US dollars

in 2012 and they predict a growth to 187.85 US dollars in 2019. In this fast growing market of organic food, poultry products occupied a very small share of the market but are expected to exhibit the fastest growth rate among other segments (Transparency Market Research, 2013). The small market share of poultry is remarkable, especially because a lot of marketing effort is focused on organic meat, and especially the poultry segment (Lin & Huang, 2011). Therefore this study is focusing on the poultry segment and especially organic chicken.

Organic chicken is a good product for this study because it is consumed by most of the population in the Netherlands and almost everybody is very familiar with it. As mentioned before, in this study there are no brand names of chicken producers used in the questionnaires. The label of the organization 'Beter leven' is used to show how environmentally friendly the chicken is produced. Most of the consumers are familiar with this label because all the big supermarkets (Albert heijn, C1000, Jumbo, etc.) sell chicken with the label of 'Beter leven'. The Table below demonstrates similar researches with their product category of choice.

Table 1: Similar researches and their product categories

Researchers	Product category
Lin, Huang	Green products in general
Batte, Hooker, Haab, Beaverson	Organic food (Thailand)
Gil, Gracia, Sanchez	Organic food (Spain)
Laroche, Bergeron, Barbaro-Forleo	Green products in general
Hadi, Selamat, Shansudin, Radan	Vegetables
Vlosky, Ozanne, Fontenot	Environmentally certified wood

3.3 Variables

Nutrition: This attribute reflects the amount of nutrition that consumers think the chicken has. The exact figures of the nutrition in a particular chicken are not given to the respondents because this study wants to know what beliefs the respondents have. The questions are formulated in a way that respondents have to compare the nutrition of conventional chicken with organic chicken. Beside the comparison between organic and conventional chicken, respondents indicated how important the attribute nutrition is for them. The goal was to investigate if people believe that organic chicken has better nutrition than conventional chicken and how important the attribute nutrition is for them.

Taste: This attribute represents the perception of taste that consumers have about the chicken. The questions about the taste are formulated in the same way as for the attribute nutrition. Respondents were not asked about the taste of a specific chicken but were asked to compare the taste of conventional chicken and organic chicken. Further, respondents indicated how important the

attribute taste is for them when they buy chicken. The goal was to investigate if people believe that organic chicken has a better taste than conventional chicken and how important the attribute taste is for them.

Environmentally friendly: The attribute environmentally friendly reflects on the different levels of animal welfare the chickens had during the production. The levels are chosen on behalf of the organization 'Beter leven'. They label all the chicken in the major supermarkets with their quality mark in the Netherlands. The chicken receives no label when it is produced in the least environmentally friendly way, and receive an extra star when the circumstances for the chicken improve. In short, the labels that are used were no star, one star, two stars and three stars. Because the label 'Beter leven' operates since 2007 most of the consumers have seen it before, which makes the questions more realistic. The goal was to investigate how much people value the chicken that is produced in a more environmentally friendly way.

Price: The attribute price reflects how much consumers value the price of organic chicken and how they perceive the price of organic chicken. Respondents are asked how important the attribute price is when they make a purchase decision. Also the price perception of organic chicken compared to conventional chicken is asked. The goal was to investigate if people perceive the price of organic chicken as too high compared to conventional chicken and to find out how important the attribute price is for them.

Environmental concern: This moderator indicates the degree of concern the respondent has about the environment. The literature review provided 9 questions from top articles to measure the environmental concern of the respondent. Questions are asked about how worried they are about the environment but also if they perform actions that help the environment (for instance donating money or recycling waste). The goal here was to measure the amount of concern the respondent experiences about the environment.

Gender: The moderator gender simply indicates if the respondent is a male or a female. This is asked because this study wants to find out if male and female value the attributes of organic chicken differently.

Age: This moderator shows the age of the respondent. The respondents were able to choose out of a age range from 0 till 100 years old. There is chosen not to make any age categories in advance because the literature review did not give an indication at what age categories people behave differently.

Willingness to pay: This dependent variable represents the amount of money in euro's consumers are willing to pay for each specific chicken. The price levels that were used in the questionnaire are based on the selling price levels in the supermarket Albert Heijn. The willingness to pay is asked for the chicken with one, two and three stars of the quality mark 'Beter leven'. The respondents were asked to indicate on a percentage scale how much they were willing to pay for chicken with one, two and three stars compared to conventional chicken. The price of conventional chicken was stated as 7.99, - euro per kilo. Compared to conventional chicken is the price of chicken with 1 star is +50%, chicken with 2 stars +100% and chicken with 3 stars +225%. The options in the questionnaire were therefore: same price, +50%, +100%, +150%, +200%, +250% and +300% or more.

In order to measure each variable there are at least three questions (variables) that measure each variable. A factor analysis will be performed to summarize the variables when this is possible. Summarizing the variables will have consequences for the interpretation of the results.

3.4 Data collection

The method that is used to collect the data is a questionnaire. The survey consisted of a hardcopy version and an online version. The online version was designed on the online survey platform Qualtrics, which can be found in Appendix 1. In order to get a higher response rate there is chosen to combine the survey questions of this research with the survey questions of another student, that has the same topic. In this way the manpower to collect the data was doubled. Combining the research questions with the other student did not result in a survey that consumed too much time of the respondents. It took respondents 10 minutes to participate in the survey. The hardcopy version of the survey was distributed in front of Albert Heijn, at a local soccer club and through relatives. The online survey was spread through social media platforms, direct and indirect mailings. There are formulas that calculate the minimum number of respondents to get a reliable result, but according to professor Hans Franses from the Erasmus University Rotterdam it is better to check if there is enough variance in the data presence. In order to get an indication of how many respondents should be reliable, the target number of respondents is 300. The respondents were friendly asked to participate in a research on consumer behavior in relation to organic food. Before the questions were asked the participants were presented with a description of the term 'organic'.

Next the content of the survey will be discussed, only the questions from the survey that are used in this study will get attention. The survey can be roughly divided into three parts based on the type of questions that are used. The first part of the questionnaire consisted of some general questions about several demographics; age, gender, income and education. All question where asked in a multiple

choice form except for ‘age’, which was an open question. The second part of the questionnaire incorporated two multi-item 7-point Likert scales, containing four and sixteen questions. The first 4 questions measure the amount of concern the respondent has about the environment. The other sixteen questions measure the attitude respondents have towards the attributes of organic chicken. The first four questions related to environmental concern are adapted from the research of William Kilbourne and Gregory Pickett. The other sixteen questions come mainly from the research of Marvin Batte, Neal Hooker, Timothy Haab and Jeremy Beaverson and the research of Susanne Padel and Carolyn Foster. The third part of the questionnaire is measuring the willingness to pay of the respondent for each level of organic chicken. The measurement is performed by a 7-point Likert scale based on percentages. The price levels are based on the prices of the supermarket Albert Heijn. Table 2 shows the structure of the questionnaire.

Table 2: Questionnaire structure

Question type	Source	Structure
Demographic questions (Q1,Q2,Q3,Q4)	Age, gender, income , education	Multiple choice and open questions
Environmental concern questions (Q14,Q15,Q16)	William Kilbourne & Gregory Pickett (2007)	7-points Likert scale based on agreements
Attributes questions (Q26-Q38)	Marvin Batte etc. (2006) Susanne Padel & Carolyn Foster (2005)	7-points Likert scale based on agreements
Willingness-to-pay questions (Q39,Q40,Q41)	Selling prices of Albert Heijn	7-points Likert scale based on percentages

After the survey was designed, a little pre-test was conducted, especially to see if the questions were clearly formulated and in order to see if the price options (willingness to pay) were wide enough. The concept version of the questionnaire was given to 10 relatives. They all agreed to answer a couple questions afterwards. In the short interviews participants were asked if the questions were clearly formulated, and on behalf of the responses a couple adjustments were made. None of the participants stated that they needed a wider price option than was given, so no adjustments were made here.

3.5 Statistical modeling

When there is a data set $\{y_i, x_{i1}, \dots, x_{ip}\}_{i=1}^n$ with n amount of statistical units, the regression model expects a linear relationship between the y_i (dependent variable) and the p -vector of the regressors x_i . In the formula there is an error term ε_i . The error term is an unobserved variable that brings noise to the linear relationship between the y_i and x_i . Therefore the model will look as follows:

$$y_i = \beta_1 x_{i1} + \dots + \beta_p x_{ip} + \varepsilon_i = \mathbf{x}_i^T \boldsymbol{\beta} + \varepsilon_i, \quad i = 1, \dots, n,$$

When these equations are put together and written in a different form it will look as follows:

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon},$$

Here you have

$$\mathbf{y} = \begin{pmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{pmatrix}, \quad \mathbf{X} = \begin{pmatrix} \mathbf{x}_1^T \\ \mathbf{x}_2^T \\ \vdots \\ \mathbf{x}_n^T \end{pmatrix} = \begin{pmatrix} x_{11} & \dots & x_{1p} \\ x_{21} & \dots & x_{2p} \\ \vdots & \ddots & \vdots \\ x_{n1} & \dots & x_{np} \end{pmatrix}, \quad \boldsymbol{\beta} = \begin{pmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_p \end{pmatrix}, \quad \boldsymbol{\varepsilon} = \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_n \end{pmatrix}.$$

There will follow some explanations of the figures that are used above.

- The term y_i can have multiple names in theory, namely: dependent variable, criterion variable, response variable, measured variable, regressand and endogenous variable. The dependent variable is the variable whose value is caused or influenced by one or multiple independent variables.
- The term $x_{i1}, x_{i2}, \dots, x_{ip}$ can be called: independent variables, exogenous variables, input variables, covariates, predictor variables, regressors and explanatory variables. As mentioned before the independent variables causes/predicts the value of the dependent variable. This is the variable that is observed. Usually an intercept is added to the independent variables which is a constant value. The intercept is the baseline of the dependent value.
- The term $\boldsymbol{\beta}$ is often called regression coefficients or effects. The regression coefficients has to be estimated by the linear regression.
- As mentioned before the term ε_i is called the error term. Other names are disturbance term or noise. The error term includes all factors that have an impact on the dependent variables and are not included as independent variables.

On behalf of the results of the factor analysis and the multiple regression analysis, the expected equations for the models can be given:

$$\text{Model 1: } WTP_{1,2 \text{ or } 3} = \beta_0 + \beta_{\text{nutrition}} + \beta_{\text{taste}} + \beta_{\text{ef}} + \beta_{\text{price}} + \epsilon_i$$

The first model used in the multiple regression analysis is investigating the influence of each product attribute on the willingness to pay for organic chicken for each star (1, 2 or 3). The variables nutrition, taste, environmentally friendly (ef) and price are the independent variables. The dependent variables will be willingness to pay for organic chicken with one star, two stars and three stars. In the model the three dependent variable options are demonstrated with 'WTP1, 2 or 3'. There will be only one dependent variable at a time, so the analysis will be performed three times. The intercept (β_0) will serve as the reference category for the utility. Model 1 will test hypotheses H1, H2, H3 and H4.

$$\begin{aligned} \text{Model 2: } WTP_{1,2 \text{ or } 3} = & \beta_0 + \beta_{\text{nutrition}} + \beta_{\text{taste}} + \beta_{\text{ef}} + \beta_{\text{price}} + \beta_{\text{nutrition X}} \\ & \text{highenvironmentalconcern} + \beta_{\text{taste X}} \\ & \text{highenvironmentalconcern} + \beta_{\text{ef X}} \\ & \text{highenvironmentalconcern} + \beta_{\text{price X}} \\ & \text{highenvironmentalconcern} + \beta_{\text{nutrition X}} \\ & \text{older} + \beta_{\text{taste X}} \\ & \text{older} + \beta_{\text{ef X}} \\ & \text{older} + \beta_{\text{price X}} \\ & \text{older} + \beta_{\text{nutrition X}} \\ & \text{male} + \beta_{\text{taste X}} \\ & \text{male} + \beta_{\text{ef X}} \\ & \text{male} + \beta_{\text{price X}} \\ & \text{male} + \epsilon_i \end{aligned}$$

The second model is based on the first model but also looks at the possible moderating effect of environmental concern, age and gender. Model 1 is extended with dummy variables of respondents that have high environmental concern, older respondents and respondents that are male. The reference category will be younger females with low environmental concern. The second model investigates if males, older persons or people with high environmental concern value the product attributes differently than people that are female, younger and have low environmental concern. Model 2 will test hypotheses 5, 6 and 7. Similar to model 1, the dependent variables in the analysis will be willingness to pay for organic chicken with 1, 2 and 3 stars. The determination of which respondents are young and which are old will be performed after the descriptive analysis of the data. When there occurs multicollinearity, the decision can be made to make three different models for each moderator.

4. RESULTS

In this chapter the results of the analyses that are performed are described. Before the data is described a factor analysis is performed. After the descriptive statistics of the data the hypotheses are tested using the multiple regression analysis.

4.1 Factor analysis

Before the factor analysis could be performed two variables needed to be recoded. The reason was that all the statements were presented in a positive wording except for two variables. For all variables counted a 7 on the multi-item scale a positive attitude towards the measurement except for the variables Q30 (taste) and Q38 (environmentally friendly). Therefore a reverse coding was used for these two variables.

The factor analysis is performed to reduce the size of the dataset (amount of variables) to underlying factors. A reliability test was performed after the factors were made in the statistics program SPSS. The reliability of the constructs of each factor was tested by Cronbach's Alpha and the results are demonstrated in table 3. The complete tables of the reliability test are shown in appendix 2. The construct of the factor is reliable when the Cronbach's Alpha is higher than the acceptable level of 0.7.

Factor	Variables	Cronbach's Alpha
Environmental concern	Q14 + Q15 + Q16	0.902
Nutrition	Q26 + Q27 + Q28	0.781
Taste	Q29 + Q30R	0.745
Price	Q32 + Q33 + Q34	0.886
Environmentally friendly	Q35 + Q36 + Q37 + Q38R	0.833

Because the factors are valid and reliable, the average of the variables can be taken in further analysis:

- Environmental concern = $(Q14 + Q15 + Q16) / 3$
- Nutrition = $(Q26 + Q27 + Q28) / 3$
- Taste = $(Q29 + Q30R) / 2$
- Price = $(Q32 + Q33 + Q34) / 3$
- Environmentally friendly = $(Q35 + Q36 + Q37 + Q38R) / 4$

4.2 Descriptive statistics

The online survey was activated on the 15th of May and closed on the 21th of May. In that time period 688 respondents completed the questionnaire online or hard copy. From all the respondents 88 did not complete all the survey questions. They probably got enough of all the questions and did not answer the last questions. Therefore, all the 88 respondents that did not complete the questionnaire were deleted out of the dataset. The final dataset consisted of 600 respondents.

First there will be an exploration of the demographics of the population sample. It consist for 58.7% out of males and 41.0% out of females (0.3% is missing). The youngest respondent in the sample is 18 years old and the oldest respondent is 81 years old. The average age in the data is 38.68 years with a standard deviation of 12.842 years. More than half of the respondents, 53.2%, have an annual income of 46.000 euro or higher. Of all the respondents has 15.5% an annual income of 15000 or less. In the population sample the educational background is high. 19.7% of all respondents has an education that is lower than a bachelor, 44.8% has a bachelor degree and the other 35.5% has at least a master's degree.

When looking at the willingness to pay for organic chicken compared to regular chicken the distinction is made between the three stars of the quality mark 'Beter Leven'. The statistics that are of interest here are the means of the scale items. The values are 1 = same price, 2 = + 50%, 3 = + 100% 4 = 150%, 5 = 200%, 6 = + 250 % and 7 = + 300% or more. The means of the willingness to pay for organic chicken with 1,2 or 3 stars are all above 1, indicating that on average respondents are willing to pay more for chicken with a star(s) from 'Beter Leven' than for regular chicken. In table 4 the means and standard deviation of the values are given, they indicate that on average the more stars the chicken has the more respondents are willing to pay for it..

Table 4: Willingness to pay for each star

Willingness to pay	Mean	Standard deviation	Min	Max
Question: 'Compared to conventional chicken I am willing to pay for chicken with 1 stars:'	1.48	0.812	1	7
Question: Compared to conventional chicken I am willing to pay for chicken with 2 stars:'	1.93	0.912	1	7
Question: 'Compared to conventional chicken I am willing to pay for chicken with 3 stars:'	2.45	1.167	1	7

When looking at the environmental concern of the respondents, three questions of the survey are of interest: question 14, 15 and 16. The questions are asked on behalf of a 7 point Likert-scale, where 1 means completely disagree and 7 means completely agree. The interesting statistics here is the means

of the scale items. The higher the means of the scale items are the higher the environmental concern is of the respondent. In table 5 the means of the scale items of the 600 respondents can be found.

Table 5: Environmental concern

Willingness to pay	Mean	Standard deviation	Min	Max
Question: 'I buy organic food because it is environmentally friendly.'	4,18	1.703	1	7
Question: 'I buy organic food because it reduces pollution.'	3,90	1.642	1	7
Question: 'I buy organic food because it is important to save natural resources.'	4,21	1.692	1	7

An interesting descriptive is that even though the literature stated that there is no proof that organic chicken taste better or has better nutrition than conventional chicken a lot of respondents do think so. A little more than 60% of the respondents agreed till a certain level with the statement that organic chicken has better nutrition than conventional chicken. And also around 60% of the respondents stated that they agreed with the statement that organic chicken tastes better than conventional chicken.

In table 6 the mean and standard deviation of each attribute is found. The mean of the attribute price is 3,82 on the 7-point Likert scale. This is close to the value 4 'somewhat agree'. The mean of the attributes nutrition and taste are between the values 'somewhat agree' and 'mostly agree'. The mean of the attribute environmentally friendly is above 'mostly agree'. A higher mean indicates in general that respondents indicated that the attribute is more important to them. In the next section there will be looked at whether the attributes importance has a significant effect on the willingness to pay for organic chicken.

Table 6: Attributes

Willingness to pay	Mean	Standard deviation	Min	Max
Nutrition	4.59	1.306	1	7
Taste	4.67	1.535	1	7
Price	3.82	1.632	1	7
Environmentally friendly	5.25	1.277	1	7

4.3 *Testing the hypotheses*

Before a multiple regression model can be performed a few adjustments needed to be made in SPSS for each of the dependent variables; WTP3, WTP2 and WTP1. The dependent variables had a Skewness of above 1 and therefore needed to be corrected. A log transformation (\log_{10}) is performed in SPSS to normalize the distribution which is positively skewed. The distribution is positively skewed when a long right tail is noticeable in the distribution. The results of the log transformation are shown by a normality test in the statistical program EViews and demonstrated in appendix 4. Also, some outliers were found which were deleted from the data using the Mahalanobis distance in SPSS.

One reminder is important to state before the models will be developed. The equation, that will be the result of the multiple regression model, are developed for the willingness to pay for organic chicken compared to conventional chicken. It is important to keep in mind that this condition results in a totally different equation than when the comparison is made between organic chicken and a hamburger. It is possible that taste does not play a role in the decision between chicken and organic chicken but does play a role in the decision between organic chicken and a hamburger. In this case taste will not have a significant contribution in the equation for the decision between organic chicken and conventional chicken but will have a significant contribution in the equation for the decision between organic chicken and a hamburger.

4.3.1 *Model 1*

In the first model the attributes nutrition, taste, price and environmentally friendly are added as independent variables. The model is used for three different dependent variables, namely the willingness to pay for organic chicken with one star (WTP1), the willingness to pay for organic chicken with two stars (WTP2) and the willingness to pay for organic chicken with three stars (WTP3). When running a multiple linear regression model, the 'ANOVA' table is the first table that needs to be looked at. In this table the meaningfulness of the model can be checked by looking at the p-value. When the p-value is greater than 0.05 the null hypothesis; H_0 : 'Adjusted R Square' is 0, is valid and therefore the model is not meaningful. When this occurs an interpretation of the other tables is unnecessary. When the p-value is lower than 0.05 the null hypothesis is rejected. Which means that there is a good fit between the data and the model, and the interpretation of the tables is allowed.

The first table that is provided by SPSS, when a regression is performed, is the 'model summary' table. The 'R Square', that can be found in the model summary table, indicates the percentages of the variation in the dependent variable may be explained by the variation in the independent variables that are included in the model. Next to the 'R Square' you find the 'Adjusted R Square' which is better to look at because this statistic corrects for the number of independent variables in the regression model.

The last table that needs to be looked at is the ‘Coefficients’ table. This table provides the individual effect of each of the independent variables. When the p-value is lower than 0.05, and therefore significant, the independent variable can be added to the equation of the model. The results of model 1 are provided in the following paragraphs for each dependent variable.

- Willingness to pay for organic chicken with one star (WTP1)

In appendix 5 the ‘ANOVA’ table can be seen and it shows a p-value of 0.000 which means that the interpretation of the tables is allowed. The ‘Adjusted R Square’ is 0.111, which means that 11.1% of the variation in the dependent variable may be explained by the variation in the independent variables that are significant.

The individual effect of each attribute on the dependent variable can be obtained from table 7 below.

Table 7: Coefficients WTP1

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.121	.055		2.188	.029
	Nutrition	.006	.008	.041	.806	.420
	Taste	.002	.006	.017	.332	.740
	Price	-.029	.005	-.257	-5.404	.000
	EnvirFriendly	.015	.008	.094	1.811	.071

a. Dependent Variable: WTP1_Lg10

The only variable that contributes substantially to the model is the variable price, which has a significance level of 0.000. Also the constant contributes to the model with a significance level of 0.029. By looking at the B coefficients in table 5, the equation can be written in the following way:

$$WTP1 = 0.121 - 0.029 * price + \epsilon_i$$

Where:

Price is the value of how important the attribute price is to the customer based on a 7-point Likert scale.

What this equation indicates is that when the importance of price goes up by one point on the 7-point Likert scale the willingness to pay for organic chicken with one star goes down by 0.029 cetris paribus. The negative direction of the coefficient price is confirming the expectation that was based on the theoretical background. This means that hypothesis 4 is accepted for the dependent variable WTP1.

The attributes nutrition, taste and environmentally friendly do not have significant coefficients and therefore are hypothesis 1, 2 and 3 rejected for the dependent variable WTP1.

- Willingness to pay for organic chicken with two stars (WTP2)

Just like WTP1 the interpretation of the tables of WTP2 are allowed, which can be seen in appendix 5. The 'Adjusted R Square' is 0.219, which means that 21,9% of the variation in the WTP2 may be explained by the variation in the independent variables that are significant.

The individual effect of each attribute on the dependent variable can be obtained from table 8 below.

Table 8: Coefficients WTP2

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.185	.055		3.332	.001
	Nutrition	.011	.008	.067	1.388	.166
	Taste	.002	.006	.016	.338	.735
	Price	-.039	.005	-.324	-7.277	.000
	EnvirFriendly	.028	.008	.167	3.427	.001

a. Dependent Variable: WTP2_Lg10

Compared to WTP1 not only the constant and the attribute price has a significance level of below 0.05 but also environmentally friendly has a significance level of below 0.05. So two variables contribute substantially to the model, namely the attributes price and environmentally friendly. By looking at the B coefficients in table 8, the equation can be written in the following way:

$$WTP2 = 0.185 + 0.028 * \text{environmentallyfriendly} - 0.039 * \text{price} + \epsilon_i$$

Where, additionally to the variable price that is already explained:

Environmentally friendly is the value of how important the attribute environmentally friendly is to the consumer based on a 7-point Likert scale.

The equation shows that when the importance of the attribute environmentally friendly goes up by one point on the 7-point Likert scale *ceteris paribus* consumers are willing to pay for organic chicken with two stars 0.028 more. When the importance of price goes up by one on the 7-point Likert scale the willingness to pay for organic chicken with two star goes down by 0.039 *ceteris paribus*. In order to check which attribute, price or environmentally friendly, is more important here the Beta can be compared because the independent variables are measured with the same 7-point Likert scale.

Environmentally friendly has a Beta of 0.028 and price has a Beta of -0.039, the Beta of price is here a higher number which means that the attribute price is more important to customers than the attribute environmentally friendly.

Because the coefficients of nutrition and taste are not significant, hypothesis 1 and 2 can be rejected for WTP2. Hypothesis 3 and 4 are accepted because as mentioned before there is a positive relationship between environmentally friendly and WTP2 and there is a negative relationship between price and WTP2.

- Willingness to pay for organic chicken with three stars (WTP3)

Similar to WTP1 and WTP2 the interpretation of the tables of WTP3 are allowed, which can be seen in appendix 5. Compared to WTP1 and WTP2 the ‘Adjusted R Square’ increased again and has a value of 0.335. The ‘Adjusted R Square’ increased each time because the significance level improved each time. The individual effect of each attribute on the dependent variable can be obtained from table 9 below.

Table 9: Coefficients WTP3

Model		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.183	.054		3.394	.001
	Nutrition	.006	.007	.033	.736	.462
	Taste	.002	.006	.013	.289	.773
	Price	-.043	.005	-.335	-8.180	.000
	EnvirFriendly	.055	.008	.315	6.996	.000

a. Dependent Variable: WTP3_Lg10

As stated before the significance level has improved when the comparison is made between the dependent variables (EnvirFriendly from 0.001 now 0.000). The attributes nutrition and taste still have a significance level of above 0.05 and therefore hypotheses 1 and 2 will be rejected for WTP3. Price and environmentally friendly do again contribute substantially to the model and will be added to the equation. By looking at the B coefficients in table 9, the equation will be written in the following way:

$$WTP3 = 0.183 + 0.055*environmentallyfriendly - 0.043*price + \epsilon_i$$

The variables in the equation are explained in the paragraphs above.

The equation above shows that when the importance of the attribute environmentally friendly goes up by one point on the 7-point Likert scale ceteris paribus consumers are willing to pay for organic chicken with two stars 0.055 more. When the importance of price goes up by one on the 7-point Likert scale the willingness to pay for organic chicken with two stars goes down by 0.043 ceteris paribus. Notice that for WTP3 the attribute environmentally friendly is more important than the attribute price. For WTP2 this was the other way around. A possible explanation for this change is that organic chicken with 3 stars is 'more' organic than organic chicken with 1 or 2 stars and therefore the attribute becomes more important to the customer. Similar to WTP2 hypothesis 3 and 4 will be accepted for WTP3.

4.3.2 Model 2

The second model is based on the first model but also looks at the possible moderating effect of environmental concern, age and gender as mentioned in the methodology. Model 1 is extended with dummy variables of respondents that have high environmental concern, older respondents and respondents that are males. The interpretation of the results in the 'model summary' table and the 'ANOVA' table of model 2 are the same as for model 1. Only the interpretation of the 'Coefficient' table is a little different as mentioned in the methodology. The second model is also used for the three dependent variables: WTP1, WTP2 and WTP3.

- Willingness to pay for organic chicken with one star (WTP1) with moderating effects

The results of the multiple regression model with moderating effects shows in the 'ANOVA' table a p-value of 0.000 (see appendix 6), which indicated that the interpretation of the tables is allowed. The 'Adjusted R Square' is 0.099. Compared to the 'Adjusted R Square' of model 1 with WTP1 as dependent variable the value is 0.002 less. This means that the second model explained less of the variation in the dependent variable (WTP1) by the variation in the independent variables. Therefore

the equation of WTP1 in the first model will be used. The ‘Coefficient’ table in appendix 6 shows that all the dummy variables are insignificant indicating that younger and older respondents, males and females and high and low environmental concern respondents value the attributes of organic chicken with one star the same. The hypotheses 1, 2, 4, 5, 6 and 7 for the dependent variable WTP1 can be rejected.

- Willingness to pay for organic chicken with two stars (WTP2) with moderating effects

Just like WTP1, the interpretation of the output tables of WTP2 are allowed, as demonstrated in appendix 6. On behalf of the ‘Coefficient’ table, in appendix 6, the following equation is written:

$$WTP2 = 0.180 - 0.031 * price + 0.031 * Nutrition - 0.037 * nutritionHighenvironmentalconcern + \epsilon_i$$

Where, additionally to the variables that are already explained:

Nutrition is the value of how important the attribute nutrition is to the consumer based on a 7-point Likert scale.

NutritionHighenvironmentalconcern is the value of how important the attribute nutrition is to consumers that express high environmental concern.

What is interesting here is that the variables *nutrition* and *nutrition_Highenvironmentalconcern* were not significant in the first model but are significant in model 2. Another interesting observation is that the variable *environmentally friendly* was significant in the first model but is not significant in the second model. In order to choose which model is better to use the ‘Adjusted R Square’ needs to be looked at. The ‘Adjusted R Square’ of model 2 decreased by 0.007 compared to model 1. What this means is that the percentage of the variation in the dependent variable that is explained by the variation in the independent variables of model 1 is higher than that of model 2. Therefore model 1 is used in the analysis of WTP2. The interpretation of the equation of model 2 will be ignored. The hypotheses 1, 2, 5, 6 and 7 for the dependent variable WTP2 can be rejected.

- Willingness to pay for organic chicken with three stars (WTP3) with moderating effects

Just like the other dependent variables: WTP1 and WTP2, the interpretation of the output tables of WTP3 are allowed, as demonstrated in appendix 6. On behalf of the ‘Coefficient’ table, in appendix 6, the following equation is written:

$$WTP3 = 0.196 + 0.043 * environmentallyfriendly - 0.044 * price - 0.039 * nutritionECHIGH + 0.036 * environmentallyfriendlyECHIGH + \epsilon_i$$

Where, additionally to the variables that are already explained:

NutritionECHIGH is the value of how important the attribute nutrition is to consumers that have high environmental concern.

EnvironmentallyfriendlyECHIGH is the value of how important the attribute environmentally friendly is to consumers that have high environmental concern.

Interesting here is that, compared to model 1, two dummy variables are added to the equation. The 'Adjusted R square' for model 2 has increased by 0.012 when the comparison is made between model 1 and 2. Therefore the equation of model 2 will be used in this paper.

The equation demonstrates that when the importance of the attribute environmentally friendly goes up by one point on the 7-point Likert scale *cestris paribus* consumers are willing to pay for organic chicken with three stars 0.043 more. When the importance of the price goes up by one point on the 7-point Likert scale *cestris paribus* consumers are willing to pay for organic chicken with three stars 0.044 more. If the importance of nutrition goes up by one point on the 7-point Likert scale *cestris paribus* for consumers with high environmental concern, they are willing to pay for organic chicken with three stars 0.039 less. This negative coefficient is a surprising result, because the literature review said that people believe organic food has better nutrition than conventional food. A possible explanation for the negative coefficient cannot be given in this paper. When the importance of environmentally friendly goes up by one point on the 7-point Likert scale *cestris paribus* for consumers with high environmental concern, they are willing to pay for organic chicken with three stars 0.079 more. So consumers with high environmental concern value the attribute environmentally friendly more than consumers with less environmental concern. The importance of the attributes price and environmentally friendly are about the same for consumers with less environmental concern, looking at the Beta of both attributes. From the equation given above, hypotheses 1, 2, 6 and 7 can be rejected and hypotheses 3, 4 and 5 can be accepted.

4.3.3 Model 3

Even though the theoretical framework of this paper was only about the first two models, the survey that is used to collect the data also asked about the educational background and the income of the respondents. It could be interesting to see if educational background and/ or income are moderating effects on the three dependent variables in this paper. The assumption is made that consumers with

high educational background and/ or high income value the attributes differently than consumers with lower educational background and/ or income. Therefore the dummy variables: ‘masterplus’ and ‘highincome’ were made. ‘Masterplus’ include all respondents with at least a master study graduation. ‘Highincome’ include all respondents with an yearly income of 61.000 euro or higher.

The output of the multiple regression analysis of model 3 can be found in appendix 7. The output shows that for none of the dependent variables; WTP1, WTP2 and WTP3, a significant moderating effect of educational background or income is found. So respondents with a high educational background or income do not value the attributes of organic chicken differently.

4.3.4 Summary of hypotheses

All the analyses are performed and the decisions which models to use for the conclusions are made. In table 10 a summary of hypotheses is given for each dependent variable.

Table 10: Summary of hypotheses

Hypothesis	1 star	2 stars	3 stars
H1: There is a positive relationship between nutrition (health) and consumer willingness-to-pay for organic chicken.	Rejected	Rejected	Rejected
H2: There is a positive relationship between taste and consumer willingness-to-pay for organic chicken.	Rejected	Rejected	Rejected
H3: There is a positive relationship between environmental friendly and consumer willingness-to-pay for organic chicken.	Rejected	Accepted	Accepted
H4: There is a negative relationship between price and consumer willingness-to-pay for organic chicken.	Accepted	Accepted	Accepted
H5: Price, taste, healthful/nutrition, environmentally friendly play a different role for high environmental concern consumer and low environmental concern consumers	Rejected	Rejected	Accepted
H6: Price, taste, healthful/nutrition, environmentally friendly play a different role for older consumers and younger consumers.	Rejected	Rejected	Rejected
H7: Price, taste, healthful/nutrition, environmentally friendly play a different role for women and men.	Rejected	Rejected	Rejected

4.4 *Characteristics of high environmental concern consumers*

As can be seen in table 10, the only moderating effect is environmental concern for WTP3. For consumers with higher environmental concern the attribute environmentally friendly is more important. It can be useful for companies in this branch to know what kind of people are more likely to have high environmental concern. Table 11 shows some characteristics and the percentage of them that has high environmental concern. In general around 30% of the respondents is defined as high environmental concern. The most interesting descriptive statistics are that females and especially older people are more likely to have high environmental concern.

Table 11: Characteristics consumers with high environmental concern

Characteristics	% with high environmental concern
Male	26.67
Female	33.04
Income under 61.000	28.08
Income above 61.000	31.43
Degree lower than master	28.77
Master or higher	29.44
Younger than 30 years	27.33
Between 29 and 50 years old	26.91
50 years or older	44.26

5. Conclusion

This chapter will start with a discussion of the results. Then scientific and managerial implications of the conclusions will be given. The limitations of this research and areas for future research will be given at the end of the chapter.

5.1 *Discussion of the results*

The goal of this paper, was to investigate how consumers value the key attributes of organic chicken and what the influence is of possible moderating factors on those attributes valuations and the willingness to pay for organic chicken.

The word 'organic' is defined differently in different jurisdictions, the general term organic farming responds to site-specific farming and crop conditions by integrating cultural, biological and mechanical practices that foster recycling of resources, promote ecological balance and conserve biodiversity. Synthetic pesticides and chemical fertilizers are generally not allowed, although certain organically approved pesticides may be used under limited conditions. In general, organic foods are also processed without using irradiation, industrial solvents or chemical food additives (Lin & Huang, 2011). In other words, in this paper the word 'organic' chicken means chicken that is better for the environment and is more ethical.

5.1.1 *Attributes*

Nutrition, taste, price and environmentally friendly were defined as key attributes in the theoretical framework. Below a small conclusion for each attribute will be given.

5.1.1.1 *taste*

It turned out that the attribute taste was always statistically insignificant in this research. As mentioned before in chapter 4 this research focused on the purchase decision between conventional chicken and organic chicken. This data shows that in general consumers don't think about the attribute taste when they make the purchase decision between conventional and organic chicken. Most of the consumers probably think that the taste of conventional chicken and organic chicken is the same.

5.1.1.2 *Price*

The attribute price turned out to be a key attribute for organic chicken with one, two and three stars. As expected, price does play an important role in the purchase decision of the consumer. There is a negative relationship between price and the dependent variable willingness to pay. When price becomes more important to a consumer, he or she is willing to pay less for organic chicken. It also seems like there is a trend going on between the amount of stars the organic chicken has and the importance of the attribute price. When consumers look for organic chicken with more stars the attribute price becomes less important to them.

5.1.1.3 Environmentally friendly

The attribute environmentally friendly is only a key attribute for organic chicken with two or three stars. When environmentally friendly becomes more important to a consumer he or she is willing to pay more for organic chicken with two and three stars. A possible explanation that the attribute environmentally friendly is insignificant for organic chicken with one star is that consumers think that organic chicken with one star is not that much environmentally friendlier than conventional chicken. So when consumers care more about the welfare they don't want to pay more for organic chicken with one star but they are willing to pay more for organic chicken with two or three stars. As mentioned above price becomes less important when consumers look for organic chicken with more stars. The attribute environmentally friendly is more important for consumers that look for organic chicken with three stars instead of two stars.

5.1.1.4 Nutrition

The last key attribute that was defined by the theoretical framework was nutrition. The results show that nutrition is only a key attribute for organic chicken with three stars for consumers with high environmental concern. Surprisingly the results show that there is a negative relationship between the attribute nutrition and willingness to pay for organic chicken with three stars. This research can unfortunately not give a possible explanation why consumers with high environmental concern are willing to pay less for organic chicken with three stars when nutrition becomes more important to them.

Now the key attributes are defined for organic chicken with one, two and three stars, it is important to find out which key attribute is most important to the consumer. As mentioned before WTP1 knows only one key attribute (price), which is therefore also the most important attribute. WTP2 has two key attributes; environmentally friendly and price. Price is the most important attribute to consumers here. For consumers with high environmental concern the attribute environmentally friendly is the most important to them when they buy organic chicken with three stars, the attribute price is second and the attribute nutrition is the third. For consumers with no high environmental concern the attributes environmentally friendly and price have about the same importance.

5.1.2 High environmental concern

The theoretical framework defined environmental concern as a possible psychological factor that can influence the consumers attribute valuations of organic chicken. Indeed, high environmental concern turned out to influence consumers attribute valuations of organic chicken with three stars. Consumers with high environmental concern are willing to pay more for the attribute environmentally friendly than consumers with lower environmental concern. As mentioned before consumers with high environmental concern are strangely enough willing to pay less for the attribute nutrition of organic chicken with three stars. So high environmental concern consumers are only willing to pay more

money for organic chicken with two or three stars when the attribute environmentally friendly increases.

5.1.3 Demographic features

In the theoretical framework the demographic features age and gender were described as possible moderating effects. The results showed that the age of gender of the respondent has no significant effect on the evaluation of the key attributes of organic chicken. Also the extra demographic features that were added in model 3, income and educational background, had no significant effect. However, that does not necessarily mean that the valuations of the attributes of organic chicken can't be moderated by different psychological factors or demographic features, or in a different comparison than organic chicken and conventional chicken.

In the end it turned out that the most important attribute where consumers look at when they make the decision between buying a conventional chicken or an organic chicken is the price, and the attribute environmentally friendly becomes more important when consumers look for organic chicken with more stars. About 63,1% of the respondents doesn't want to pay more money for organic chicken with 1 star than for conventional chicken. Around 30,5% of the respondents indicated that they are willing to pay 50% more money for organic chicken with one star. Only 32,7% of the respondents indicated that they don't want to pay more for organic chicken with 2 stars than for conventional chicken. About 50,3% is willing to pay 50% more and 13,3% is willing to pay 100% more. For organic chicken with 3 stars 17,1% of the respondents is not willing to pay more money than for conventional chicken. 42,9% is willing to pay 50% more and 25,3% is willing to pay 100% more. The figure is demonstrated in table 12 below. Despite that many respondents indicated that they are willing to pay more for organic chicken, a lot of them won't buy organic chicken as long as the cheaper alternative of conventional chicken is available. The attribute price is more important to them than the attribute environmentally friendly. When organic chicken can be sold for a lower price or conventional chicken becomes more expensive it is very likely that consumers start buying organic chicken more often.

Table 12: willingness to pay for each star

Stars	% doesn't want to pay more	% willing to pay 50% more	% willing to pay 100% more
1	63,1	30,5	4,0
2	32,7	50,3	13,3
3	17,1	42,9	25,3

5.2 *Scientific implications*

Building on the growing body of existing literature focusing on psychological factors that influence purchase decisions of organic food (Batte, Hooker, Haab, & Beaverson, 2006) (Cheah & Phau, 2011), this research has identified that the psychological factor environmental concern can have impact on the attributes environmentally friendly and nutrition. An important finding for further research is that particular psychological factors do influence purchase decisions of organic food in one situation and do not in another situation. Till now the literature stated that environmental concern always influences the purchase decisions of organic food but in this paper it only appeared for organic chicken with three stars. Researchers should be aware that psychological factors can have different influences on purchase decisions in different situations.

This study also adds knowledge to the existing literature by demonstrating that product attributes can play different roles in different purchase decisions that consumers have to make. Findings in this study help deepen the understanding of the decision making process of buying organic food and especially for organic chicken. In addition, this research excluded some demographic characteristics that do not influence the decisions making process.

5.3 *Managerial implications*

The findings of this study provide usable information for managers from both companies as non-profit organizations. Producers and supermarkets that sell organic chicken have a better insight in the trade-offs consumers make. They can see, probably as expected, that price is the most important factor. The paper gives a better understanding of consumers' willingness to pay for each key attribute of organic chicken for each star the chicken has. It is also useful to know for producers and supermarkets that taste and nutrition currently do not play a role in the decision making process of most consumers. Producers and supermarkets could see this conclusion as a situation they have to deal with or as an opportunity. Maybe with some marketing effort they can differentiate themselves by showing the consumers there are differences in taste. The segmentation producers and supermarkets can use the information that no demographic characteristics were found that influence the decision making process of consumers, which may indicate that managers should keep a broad target group.

Non-profit organization, like 'Wakker dier', could also benefit from this research. As mentioned before the key attributes of organic chicken in general are environmentally friendly and price. Price is the most important one of the two. In order to make organic chicken more popular non-profit

organizations and companies involved in the industry should make the attribute price less important or the attribute environmentally friendly more important. Currently 'Wakker dier' is trying to do this by broadcasting a campaign about the broiler chicken. The goal of the campaign is to make people aware of the horrible life a broiler chicken has lived before it ends up on your dining table and aims to make the attribute environmentally friendly more important than the attribute price. 'Wakker dier' also puts a lot of effort in eliminating broiler chicken in super markets. This will lead to higher prices of conventional chicken, which will lead to a smaller price difference between organic chicken and conventional chicken. In this way they hope the attribute price of organic chicken becomes less important compared to conventional chicken. This research confirms that the strategy of 'Wakker dier' is the right strategy to make the organic chicken more popular.

5.4 Limitations and directions for future research

Just like in any other research, there are some limitations in this study that need to be taken into consideration. First of all, the data is collected using a survey that is distributed online and hardcopy. Respondents were asked to answer the questions as honest as possible, but this may be doubted because the respondents were not in a decision making setting and humans don't always act the way they say they would act. For instance the question about the willingness to pay for organic chicken, a respondent can say that he is willing to pay more money but in real life he or she is not actually willing to pay more.

Another limitation of this research is that the data showed heteroscedasity. Before a multiple regression model is performed nine assumptions needs to be tested. The Breasch pagan test was performed in Eviews and indicated the data had heteroskedasticity instead of homoscedasticity. More data could solve this problem but was not available for this research.

This research focused on organic chicken. For further research it could be interesting to find out if the attribute evaluation is differently across product categories. Maybe for products that are already expensive, like steak the evaluation is differently or for products that are cheaper compared to chicken, like vegetables. In this study the only psychological factor that has been looked at is environmental concern and turned out to have a moderating effect. In order to better understand psychological effects on the attribute valuations further research is needed. A few respondents indicated that they had too little knowledge of organic food to answer the questionnaire. Therefore it could be interesting to look at knowledge as a moderating effect.

Bibliography

- Amyx, D., De Jong, P., Lin, X., Chakraborty, G., & Weiner, J. (1994). Influencers of purchase intentions for ecologically safe products. *AMA Winter Educators' Conference Proceedings*, 82 (3), 340-352.
- Antil, J. (1978). The construction and validation of an instrument to measure socially responsible consumer behaviour: a study of the socially responsible consumer'. *Pennsylvania state University*, 52 (2), 20-31.
- Arcury, T., & Christianson, E. (1990). Environmental worldview in response to environmental problems kentucky 1984 and 1988 compared. *Environment and behavior*, 43 (3) 32-39 .
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavior change. *Psychological review*, 72 (2), 223-235.
- Banerjee, S., Iyer, E., & Kashyap, R. (2003). Corporate environmentalism: antecedents and influence of industry type. *Journal of marketing*, 12 (3), 431-447.
- Batte, M., Hooker, N., Haab, T., & Beaverson, J. (2006). Putting their money where their mouths are: Consumer willingness to pay for multi-ingredient, processed organic food products. *Elsevier*, 25 (2012), 470-482.
- Bei, L., & Simpson, E. (1995). The determinants of consumer' purchase decisions for recycled products. *Advances in Consumers Research* 27, 261-270.
- Berger, I., & Corbin, R. (1992). Perceived consumer effectiveness and faith in others as moderators of environmentally responsible behaviors. *Journal of public policy and marketing*, 10 (4), 104-110.
- Bezawada, R., & Pauwels, K. (2013). What is special about marketing organic products? How organic assortment, price and promotion drive retailer promotions? *Journal of marketing*, 77 (1), 31-40.
- Birgit Roitner-Schobesberger, I. D. (2007). Consumer perceptions of organic foods in Bangkok, Thailand. *Elsevier*, 33 (2), 98-110.
- Boccaletti, S., & Moro, D. (2000). CONSUMER WILLINGNESS-TO-PAY FOR GM FOOD PRODUCTS IN ITALY. *AgBioForum* 34 (3), 374-384.
- Brown, D. (2008). It is good to be green: environmentally friendly credentials are influencing business outsourcing decisions. *Strategic outsourcing: an international journal*, 1 (1), 87-95.
- Chain store age. (2009). "Forty Under 40: Small Chains Flourish". *Chain Store Age*.
- Cheah, I., & Phau, I. (2011). Attitudes towards environmentally friendly products. *Emerald* 29, (5) 212-227.
- Choi, M., & Kim, Y. (2005). Antecedents of green purchase behavior: an examination of collectivism, environmental concern, and PCE. *Advances in Consumer research*, 25 (1), 1-15.

- Diamantopoulos, A., Schlegelmilch, B., Sinkovics, R., & Bohlen, M. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of business research*, 56 (3), 465-480.
- D'Souza, C., Taghian, M., & Lamb, P. (2006). An empirical study on the influence of environmental labels on consumers. *Corporate communications: an international journal* 11 (2) 162-170.
- Ellen, P., Wiener, J., & Cobb-Walgren, C. (1991). The role of perceived consumer effectiveness in motivation environmentally conscious behaviors. *Journal of public policy and marketing* 23 (1), 80-88.
- Foster, C. (2005). Exploring the gap between attitude and behaviour understanding why consumers buy or do not buy organic food. *British food journal* 107 (8) 606-625.
- Fransson, N., & Garling, T. (2000). Environmental concern: conceptual definitions, measurement, methods and research findings. *Goteborg: Journal of environmental psychology* 23 (2), 109-123.
- Gil, J., Gracia, A., & Sánchez, M. (2000). Market segmentation and willingness to pay for organic products in Spain. *Elsevier*, 3 (2), 207-222.
- grocer, p. (2009). *outside the bubble*, 32-45.
- IFOAM, F. a. (2012). *The world of organic agriculture*, 1-340.
- Janssens, W., Wijnen, K., De Pelsmacker, P., & Van Kenhove, P. (2008). *Marketing research with SPSS*. Edinburgh gate: Prentice Hall.
- Kärnä, J., Hansen, E., & Juslin, H. (2003). Social responsibility in environmental marketing planning. *European Journal of Marketing*, 37 (5/6), 245-262.
- Kilbourne, W., & Pickett, G. (2008). How materialism affects environmental marketing environmental beliefs, concern and environmentally responsible behavior. *Journal of business research*, 32 (4), 402-422.
- Kinncar, T., Taylor, J., & Ahmed, S. (1974). Ecologically concerned consumers: who are they? *Journal of marketing*, 41 (2), 267-279.
- Laroche, M., Bergeron, J., & Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of consumer marketing*, 46 (3), 187-198.
- Lee, K. (2008). Opportunities for green marketing: young consumers. *Emerald* 32 (2), 502-516.
- Lin, P.-C., & Huang, Y.-H. (2011). The influence factors on choice behavior regarding green products based on the theory of consumption values. *Elsevier*, 20 (3), 34-47.
- lin, P.-C., & Huang, Y.-H. (2012). The influence factors on choice behavior regarding green products based on the theory of consumption values. *Elsevier*, 87 (1), 167-187.
- Long, M., & Schiffman, L. (2000). Consumption values and relationships: segmenting the market for frequency programs. *Journal of Consumer Marketing*, 65 (3), 214-232.

- Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour towards green practices in the lodging industry in india. *International journal of contemporary hospitality management*, 22 (4), 344-357.
- Max Havelaar. (2014). *Info over Max Havelaar*. Retrieved from Website van Max Havelaar: <http://www.maxhavelaar.nl/64/english>
- McCarty, & Shrum, L. (1994). The recycling of solid wastes: personal values, value orientations and attitudes about recycling as antecedents of recycling behavior. *Journal of business research*, 12 (3), 67-75.
- Mojet, J., & Heidema, J. (2001). *Taste Perception with Age: Generic or Specific Losses in Threshold Sensitivity to the Five Basic Tastes?* Vlaardingen: Chemical senses 32 (1), 42-57.
- Mostafa, M. M. (2007). A Hierarchical Analysis of the Green Consciousness of the Egyptian Consumer. *Psychology & Marketing* 89 (5), 502-522.
- OECD. (2009). Sustainable manufacturing and eco-innovation: towards a green economy. *Policy Brief June*, 12 (2), 56-69.
- Osterhus, T. (1997). Pro-social consumer influences strategies: when and how do they work? *Journal of marketing*, 23 (3), 242-251.
- Renee, H., Pierre, M., & Andrea, P. (2007). Who are organic food consumers? a compilation and review of why people purchase organic food. *Journal of consumer behaviour*, 52 (6), 189-200.
- Rex, E., & Baumann, H. (1993). Beyond ecolabels: what green marketing can learn from conventional marketing. *Journal of Cleaner Production*, 19 (4), 488-493.
- Roberts, J., & Bacon, D. (1997). Exploring the subtle relationships between environmental concern and ecologically conscious consumer behaviour. *Journal of business research*, 76 (1), 405-414.
- Roheim, C., & D'Silva, R. (2009). Illustration of the U.S. Organic Agricultural Produce Price Premiums. *University of Rhode Island*, 12 (1), 56-67.
- Ross, J., Patterson, L., & Stutts, M. (1992). Consumer perceptions of organizations that use cause-related marketing. *Journal of the Academy of Marketing Science*, 76 (1), 378-389.
- Sheth, J., Newman, B., & Gross, B. (1991). Why we buy what we buy: a theory of consumption values. *Journal of business Research*, 42 (2), 159-170.
- Straughan, R., & Roberts, J. (1999). Environmental segmentation alternatives: a look at green consumer behaviour in the new millennium. *Journal of consumer marketing*, 20 (1), 558-575.
- Strong, C. (1996). Features contributing to the growth of ethical consumerism a preliminary investigation. *Marketing intelligence & planning*, 65 (5), 589-602.
- Sweeney, J, & Soutar, G. (2001). Consumer perceived value: the development of a multiple item scale. *Journal of Retailing*, 45 (4), 402-409.

- Transparency Market Research. (2013). *Organic Food and Beverage Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2013 - 2019*. Albany: Transparency Market Research, 1 (1), 1- 360.
- Uusitalo, O., & Oksanen, R. (2004). Ethical consumerism: a view from Finland. *International journal of consumer studies*, 32 (2), 221-230.
- Van liere, K., & Dunlab, R. (1980). The social bases of environmental concern: a review of hypotheses, explanation and emperical evidence. *Oxford: Public opinion quarterly*, 3 (2), 432-442.
- Vlosky, R., Ozanne, L., & Fontenot, R. (1999). A conceptual model of US consumer willingness-to-pay for environmentally certified wood products. *Journal of consumer marketing*, 78 (1), 553-565.
- Vocht, A. d. (2010). *Basishandboek spss 18*. Utrecht: BIJLEVELD PRESS.
- Williamson, C. (2007). Is organic food better for our health? *Food and nutrition bulletin*, 23 (1), 54-67.
- Young, W., Hwang, K., McDonald, S., & Oates, C. (2009). Sustainable consumption: green consumer behaviour when purchasing products. *Sustainable Development*, 40 (3), 120-140.

APPENDICES

Appendix 1: Survey

Thank you in advance for taking your time to complete this survey. I am a student at the Erasmus University of Rotterdam and I am conducting a research on “Consumer behaviour in relation to organic food” for my Master’s Thesis. It should only take about 10 minutes of your time.

Before you start to answer the survey, it is important that you understand the term “organic food”. Organic foods are grown without the use of synthetic pesticides, growth hormones, antibiotics, modern genetic engineering techniques (including genetically modified crops), chemical fertilizers, or sewage sludge.

Please cross the box next to the answer of your choice



write your answer in the space provided.

1. What is your age? _____

2. What is your gender?

Male Female

3. What is your yearly income?

0 – 15 000 16 000-30 000 31 000 – 45 000 46 000 – 60 000 61 000 – higher

4. What is the highest degree or level of school you have completed?

Lower than bachelor
 Bachelor's degree
 Master's degree
 Doctorate degree

5. What is your status?

Single
 living together
 Married
 Widowed
 Divorced
 Other _____

6. Do you have children?

Yes, How Many _____ No

7. If you have children that live at home, in which range of age are they?

From 0 to 6 years
 From 6 to 12 years
 Older than 12 years

8. How many people make up your household?

1 person
 2 persons
 3-4 persons
 5 or more persons

9. What is your cultural background

Dutch (Nederlandse)
 Dutch Indonesian (Indonesisch)
 Dutch Surinamese (Surinaamse)
 Dutch Antillian (Antilliaanse)
 Dutch Aruban (Arubaanse)
 Turkish (Turkse)
 Moroccan (Marokkaanse)
 Other cultural background (Andere nationaliteit) _____

Please specify how much you agree (disagree) with the following statements by crossing the box of your preferred answer.

Statements	Completely disagree	Mostly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Mostly agree	Completely agree
10) Humans are severely abusing the environment.							
11) Nature is strong enough to deal with the impacts of modern industrial nations.							
12) The so-called "ecological crisis" facing humankind has been greatly exaggerated.							
13) Everybody should donate money to environmental friendly organizations.							
14) I buy organic food because it is environmentally friendly.							
15) I buy organic food because it reduces pollution.							
16) I buy organic food because it is important to save natural resources.							
17) I am concerned about health problems and try to take action to prevent them.							
18) I don't think health problems I hear about will happen to me.							
19) I buy organic food because they are good for the digestion.							
20) I buy organic food because they are good for your health.							
21) I buy organic food because it is more nutritious than non-organic food							

Statements	Completely disagree	Mostly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Mostly agree	Completely agree
22) I buy organic food sold in The Netherlands because it is locally produced							
23) It is reasonable to buy Dutch products, because that helps the Dutch economy/ employment							
24) Only those products not made in The Netherlands should be imported							
25) The consumption of organic food helps the local economy							

The following questions are about the food product chickens and especially organic chicken. To what extent do you agree (disagree) with the following statements:

Statements	Completely disagree	Mostly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Mostly agree	Completely agree
26) Organic chicken has better nutritious than conventional chicken							
27) I prefer organic chicken over conventional chicken because they are better for my health							
28) When I buy chicken nutrition is a very important attribute to me							
29) Organic chicken tastes better than conventional							
30) I can't taste the difference between organic chicken and conventional chickens							
31) When I buy organic chicken taste is a very important attribute to me							
32) When I buy chicken the first thing I look at is the price							
33) I don't buy organic chicken because they are too expensive							
34) When I buy chicken price is a very important attribute to me							



In the Netherlands the quality mark 'beter leven' gives stars (0 till 3) for the welfare of the life a chicken had. In order to give you a better understanding of the stars we translate them to a welfare percentage of the life they had. 0 stars means 0% welfare (the worst life a chicken could have lived). 1 star means they had welfare of 40% of the best possible life a chicken can have. 2 stars means they had welfare of 50% of the best possible life a chicken can have. 3 stars means they had the best possible welfare a chicken can have (100%).

To what extent do you agree (disagree) with the following statements:

Statements	Completely disagree	Mostly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Mostly agree	Completely agree
35) The better life a chicken had (more stars) the more likely I am to buy it							
36) When there is a conventional chicken and organic chicken I choose the organic chicken							
37) When I buy chicken the way the chicken lived (amount of stars) is important to me							
38) I never care whether the chicken I buy is environmentally friendly							

Compared to conventional chicken (7,99 euro a kilo) what is your willingness to pay for organic chicken for each star?

Statements	Same price (7.99,-)	+50% (12.0,-)	+100% (15.98,-)	+150% (19.98,-)	+200% (23.98)	+250% (27.96,-)	+300% or more (31.96)
39) Compared to conventional chicken I am willing to pay for chicken with 1 star:							
40) Compared to conventional chicken I am willing to pay for chicken with 2 star:							
41) Compared to conventional chicken I am willing to pay for chicken with 3 star:							

Please specify how much you agree (disagree) with the following statements.

Statements	Completely disagree	Mostly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Mostly agree	Completely agree
42) It would be better for the social well-being in the long run if people favored organic food							
43) I feel more responsible if I favor products that are organic							
44) Society would benefit from the removal of products that are not organic							
45) I feel better about myself if I consume organic food							
46) Organic food are products that I like to be associated with							

47) Please rank the following label's information, from most to least important to you, when buying organic food. (1=most important; 2= Second in importance; 3= third in importance; 4= least important):

Importance	Label Information
	Product's country of origin
	Altruistic support to some organization
	Nutriments
	Environmental considerations

Thank you so much for your collaboration and time!

Appendix 2: Factor analysis

Environmental concern:

Reliability Statistics

Cronbach's Alpha	N of Items
.902	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Environmental concern (Q14)	8.11	9.714	.809	.856
Environmental concern (Q15)	8.39	9.930	.830	.839
Environmental concern (Q16)	8.07	10.021	.777	.883

In this factor all the three questions are used, so environmental concern = (Q14 + Q15 + Q16) / 3

Nutrition:

Reliability Statistics

Cronbach's Alpha	N of Items
.781	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Nutrition (Q26)	8.98	8.383	.579	.748
Nutrition (Q27)	9.10	6.866	.677	.638
Nutrition (Q28)	9.40	7.532	.608	.717

For this factor all the three questions are used, so nutrition = (Q26 + Q27 + Q28) / 3

Taste:

Reliability Statistics

Cronbach's Alpha	N of Items
.616	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Taste (Q29)	9.8545	5.592	.623	.207
Taste Q30R	10.4247	5.260	.483	.439
Taste (Q31)	9.3395	9.411	.223	.745

For this factor the questions Q 29 and Q30R are used, so price = (Q29 + Q30R) / 2

Price:

Reliability Statistics

Cronbach's Alpha	N of Items
.886	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Price (Q32)	7.52	10.981	.788	.830
Price (Q33)	8.05	11.728	.750	.863
Price (Q34)	7.35	11.044	.798	.821

In this factor all the three questions are used, so price = (Q32 + Q33 + Q34) / 3

Environmentally friendly:

Reliability Statistics

Cronbach's Alpha	N of Items
.833	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Environmentally friendly (Q35)	16.1882	14.594	.700	.772
Environmentally friendly (Q36)	15.0588	17.490	.563	.830
Environmentally friendly (Q37)	15.8454	14.663	.797	.730
Environmentally friendly Q38R	15.9378	15.207	.609	.816

The factor is reliable when all questions are used, so environmentally friendly = (Q35 + Q36 + Q37 + Q38R) / 4

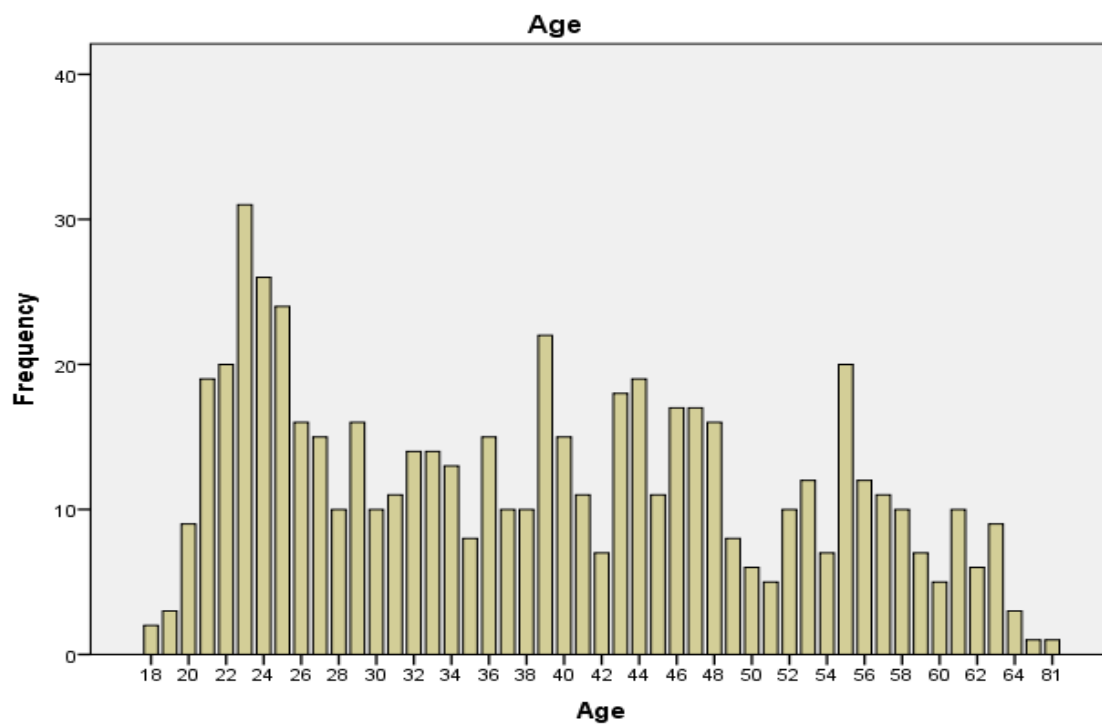
Appendix 3: Descriptive statistics

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	352	58.7	58.9	58.9
	Female	246	41.0	41.1	100.0
	Total	598	99.7	100.0	
Missing	System	2	.3		
Total		600	100.0		

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	592	18	81	38.68	12.842
Valid N (listwise)	592				



Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 15000	93	15.5	15.8	15.8
	16000 - 30000	62	10.3	10.5	26.3
	31000 - 45000	121	20.2	20.5	46.8
	46000 - 60000	127	21.2	21.5	68.3
	61000 - higher	187	31.2	31.7	100.0
	Total	590	98.3	100.0	
Missing	System	10	1.7		
Total		600	100.0		

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lower than bachelor	118	19.7	19.7	19.7
	Bachelor	269	44.8	44.9	64.6
	Master	182	30.3	30.4	95.0
	Doctoral	30	5.0	5.0	100.0
	Total	599	99.8	100.0	
Missing	System	1	.2		
Total		600	100.0		

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
WTP 1	598	1	7	1.48	.812
WTP 2	598	1	7	1.93	.921
WTP 3	599	1	7	2.45	1.167
Valid N (listwise)	597				

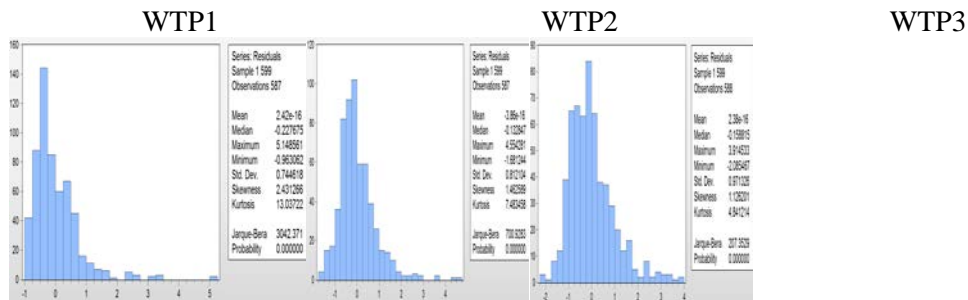
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Environmental concern (Q14)	600	1	7	4.18	1.703
Environmental concern (Q15)	600	1	7	3.90	1.642
Environmental concern (Q16)	598	1	7	4.21	1.692
Valid N (listwise)	598				

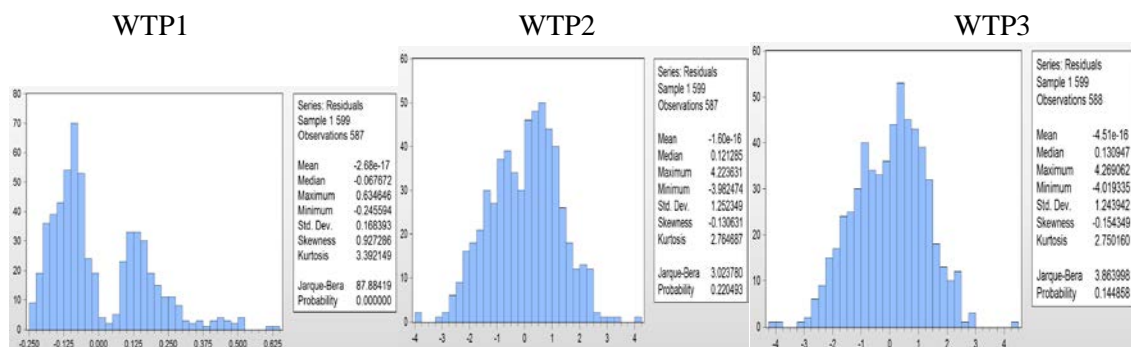
Appendix 4 : Transformations for linear regression

Normal distribution transformation

Normal distribution:



After Log10 transformation:



Outliers :

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.71	3.66	2.45	.632	589
Std. Predicted Value	-2.752	1.907	.000	1.000	589
Standard Error of Predicted Value	.042	.217	.088	.024	589
Adjusted Predicted Value	.71	3.67	2.45	.632	589
Residual	-2.086	4.588	.000	.989	589
Std. Residual	-2.103	4.624	.000	.997	589
Stud. Residual	-2.108	4.645	.000	1.001	589
Deleted Residual	-2.097	4.631	.000	.998	589
Stud. Deleted Residual	-2.114	4.729	.001	1.005	589
Mahal. Distance	.072	27.106	3.993	2.999	589
Cook's Distance	.000	.043	.002	.004	589
Centered Leverage Value	.000	.046	.007	.005	589

a. Dependent Variable: WTP 3 (Q41)

Outliers are deleted with a Mahalanobis distance of higher than the critical value of 9.488

Appendix 5: Results of model 1

Output multiple regression analysis

WTP1:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.342 ^a	.117	.111	.16937

a. Predictors: (Constant), EnvirFriendly, Taste, Price, Nutrition

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.096	4	.524	18.268	.000 ^b
	Residual	15.778	550	.029		
	Total	17.874	554			

a. Dependent Variable: WTP1_Lg10

b. Predictors: (Constant), EnvirFriendly, Taste, Price, Nutrition

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.121	.055		2.188	.029
	Nutrition	.006	.008	.041	.806	.420
	Taste	.002	.006	.017	.332	.740
	Price	-.029	.005	-.257	-5.404	.000
	EnvirFriendly	.015	.008	.094	1.811	.071

a. Dependent Variable: WTP1_Lg10

WTP2:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.474 ^a	.224	.219	.16970

a. Predictors: (Constant), EnvirFriendly, Taste, Price, Nutrition

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.585	4	1.146	39.805	.000 ^b

Residual	15.838	550	.029		
Total	20.424	554			

a. Dependent Variable: WTP2_Lg10

b. Predictors: (Constant), EnvirFriendly, Taste, Price, Nutrition

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.185	.055		3.332	.001
	Nutrition	.011	.008	.067	1.388	.166
	Taste	.002	.006	.016	.338	.735
	Price	-.039	.005	-.324	-7.277	.000
	EnvirFriendly	.028	.008	.167	3.427	.001

a. Dependent Variable: WTP2_Lg10

WTP3:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.583 ^a	.340	.335	.16502

a. Predictors: (Constant), EnvirFriendly, Taste, Price, Nutrition

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.748	4	1.937	71.134	.000 ^b
	Residual	15.032	552	.027		
	Total	22.780	556			

a. Dependent Variable: WTP3_Lg10

b. Predictors: (Constant), EnvirFriendly, Taste, Price, Nutrition

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.183	.054		3.394	.001
Nutrition	.006	.007	.033	.736	.462
Taste	.002	.006	.013	.289	.773
Price	-.043	.005	-.335	-8.180	.000
EnvirFriendly	.055	.008	.315	6.996	.000

a. Dependent Variable: WTP3_Lg10

Appendix 6: Results of model 2

Output multiple regression analysis with moderating effects

WTP1:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.355 ^a	.126	.099	.17112

a. Predictors: (Constant), EnFriendly_Males, Price_ECHIGH, Price, Price_Older, Nutrition, Taste, EnvirFriendly, Taste_Older, Taste_ECHIGH, Price_Males, Taste_Males, EnFriendly_Older, Nutrition_ECHIGH, Nutrition_Males, Nutrition_Older, EnvirFriendly_ECHIGH

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.111	.059		1.872	.062
	Nutrition	.012	.015	.080	.817	.414
	Taste	.004	.011	.035	.398	.691
	Price	-.020	.008	-.176	-2.434	.015
	EnvirFriendly	.003	.014	.018	.200	.842
	Nutrition_ECHIGH	-.015	.018	-.201	-.832	.406
	Taste_ECHIGH	-.006	.014	-.080	-.402	.688
	Price_ECHIGH	-.003	.010	-.030	-.321	.748
	EnFriendly_ECHIGH	.017	.016	.265	1.039	.299
	Nutrition_Older	.018	.016	.252	1.104	.270
	Taste_Older	-.010	.013	-.146	-.767	.444
	Price_Older	-.005	.008	-.051	-.612	.541
	EnFriendly_Older	-.001	.014	-.011	-.048	.962
	Nutrition_Males	-.016	.016	-.223	-1.013	.312
	Taste_Males	.004	.012	.054	.312	.755
	Price_Males	-.009	.007	-.109	-1.178	.239
	EnFriendly_Males	.016	.014	.249	1.137	.256

a. Dependent Variable: WTP1_Lg10

WTP2:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.485 ^a	.235	.212	.17107

a. Predictors: (Constant), EnFriendly_Males, Price_ECHIGH, Price, Price_Older, Nutrition, Taste, EnvirFriendly, Taste_Older, Taste_ECHIGH, Price_Males, Taste_Males, EnFriendly_Older, Nutrition_ECHIGH, Nutrition_Males, Nutrition_Older, EnFriendly_ECHIGH

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.180	.059		3.048	.002
	Nutrition	.031	.015	.190	2.076	.038
	Taste	-.003	.011	-.023	-.276	.783
	Price	-.037	.008	-.308	-4.541	.000
	EnvirFriendly	.014	.014	.081	.980	.327
	Nutrition_ECHIGH	-.037	.018	-.473	-2.087	.037
	Taste_ECHIGH	.005	.014	.062	.335	.738
	Price_ECHIGH	.004	.010	.036	.415	.678
	EnFriendly_ECHIGH	.025	.016	.364	1.526	.128
	Nutrition_Older	-.011	.016	-.140	-.656	.512
	Taste_Older	.002	.013	.035	.195	.845
	Price_Older	-.003	.008	-.028	-.359	.720
	EnFriendly_Older	.008	.014	.127	.600	.549
	Nutrition_Males	-.006	.016	-.077	-.375	.708
	Taste_Males	.007	.012	.088	.552	.581
	Price_Males	-.004	.007	-.042	-.488	.625
	EnFriendly_Males	.003	.014	.043	.212	.832

a. Dependent Variable: WTP2_Lg10

WTP3:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.605 ^a	.366	.347	.16308

a. Predictors: (Constant), EnFriendly_Males, Price_ECHIGH, Price, Price_Older, Nutrition, Taste, EnvirFriendly, Taste_Older, Taste_ECHIGH, Price_Males, Taste_Males, EnFriendly_Older, Nutrition_ECHIGH, Nutrition_Males, Nutrition_Older, EnFriendly_ECHIGH

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.196	.056		3.483	.001
	Nutrition	.023	.014	.135	1.611	.108
	Taste	.000	.010	-.002	-.028	.978
	Price	-.044	.008	-.346	-5.614	.000
	EnvirFriendly	.043	.013	.247	3.268	.001
	Nutrition_ECHIGH	-.039	.017	-.466	-2.258	.024
	Taste_ECHIGH	-.005	.014	-.061	-.361	.718
	Price_ECHIGH	.005	.010	.038	.482	.630
	EnFriendly_ECHIGH	.036	.016	.494	2.278	.023
	Nutrition_Older	-.009	.015	-.119	-.614	.539
	Taste_Older	-.002	.012	-.021	-.128	.898
	Price_Older	-.006	.007	-.057	-.805	.421
	EnFriendly_Older	.009	.013	.133	.695	.488
	Nutrition_Males	-.001	.015	-.014	-.075	.940
	Taste_Males	.009	.012	.109	.749	.454
	Price_Males	-.001	.007	-.012	-.159	.874
	EnFriendly_Males	-.008	.014	-.108	-.582	.561

a. Dependent Variable: WTP3_Lg10

Appendix 7: Results of model 3

WTP1:

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.364 ^a	.132	.092	.17189

a. Predictors: (Constant), EnFriendly_Masterplus, Price_Males, Price_ECHIGH, Taste_Highincome, Price_Older, Nutrition, Price, Taste, EnvirFriendly, Taste_Males, Price_Highincome, Taste_ECHIGH, Price_Masterplus, Taste_Older, Taste_Masterplus, EnFriendly_Males, Nutrition_Older, Nutrition_ECHIGH, EnFriendly_Highincome, Nutrition_Masterplus, Nutrition_Males, EnFriendly_Older, Nutrition_Highincome, EnFriendly_ECHIGH

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.333	24	.097	3.290	.000 ^b
	Residual	15.305	518	.030		
	Total	17.638	542			

a. Dependent Variable: WTP1_Lg10

b. Predictors: (Constant), EnFriendly_Masterplus, Price_Males, Price_ECHIGH, Taste_Highincome, Price_Older, Nutrition, Price, Taste, EnvirFriendly, Taste_Males, Price_Highincome, Taste_ECHIGH, Price_Masterplus, Taste_Older, Taste_Masterplus, EnFriendly_Males, Nutrition_Older, Nutrtrion_ECHIGH, EnFriendly_Highincome, Nutrition_Masterplus, Nutrition_Males, EnFriendly_Older, Nutrition_Highincome, EnFriendly_ECHIGH

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.112	.060		1.863	.063
	Nutrition	.011	.017	.072	.670	.503
	Taste	.006	.012	.045	.451	.652
	Price	-.018	.009	-.163	-2.081	.038
	EnvirFriendly	.000	.015	.001	.012	.991
	Nutrition_ECHIGH	-.012	.018	-.165	-.669	.504
	Taste_ECHIGH	-.007	.014	-.102	-.506	.613
	Price_ECHIGH	-.003	.011	-.024	-.254	.800
	EnFriendly_ECHIGH	.016	.017	.251	.964	.336
	Nutrition_Older	.011	.018	.161	.635	.526
	Taste_Older	-.012	.014	-.174	-.840	.402
	Price_Older	-.003	.009	-.035	-.377	.706
	EnFriendly_Older	.005	.015	.086	.348	.728
	Nutrition_Males	-.021	.017	-.278	-1.195	.233
	Taste_Males	.003	.013	.040	.220	.826
	Price_Males	-.006	.008	-.076	-.800	.424
	EnFriendly_Males	.018	.015	.276	1.209	.227
	Nutrition_Highincome	.018	.020	.239	.920	.358
	Taste_Highincome	.006	.015	.080	.374	.709
	Price_Highincome	-.008	.010	-.072	-.755	.450
	EnFriendly_Highincome	-.013	.017	-.197	-.771	.441
	Nutrition_Masterplus	.003	.017	.040	.179	.858
	Taste_Masterplus	-.005	.013	-.062	-.353	.724
	Price_Masterplus	-.003	.008	-.038	-.398	.691
	EnFriendly_Masterplus	.005	.015	.082	.368	.713

a. Dependent Variable: WTP1_Lg10

WTP2:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.491 ^a	.241	.206	.17162

a. Predictors: (Constant), EnFriendly_Masterplus, Price_Males, Price_ECHIGH, Taste_Highincome, Price_Older, Nutrition, Price, Taste, EnvirFriendly, Taste_Males, Price_Highincome, Taste_ECHIGH, Price_Masterplus, Taste_Older, Taste_Masterplus, EnFriendly_Males, Nutrition_Older, Nutrion_ECHIGH, EnFriendly_Highincome, Nutrition_Masterplus, Nutrition_Males, EnFriendly_Older, Nutrition_Highincome, EnFriendly_ECHIGH

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.852	24	.202	6.864	.000 ^b
	Residual	15.257	518	.029		
	Total	20.109	542			

a. Dependent Variable: WTP2_Lg10

b. Predictors: (Constant), EnFriendly_Masterplus, Price_Males, Price_ECHIGH, Taste_Highincome, Price_Older, Nutrition, Price, Taste, EnvirFriendly, Taste_Males, Price_Highincome, Taste_ECHIGH, Price_Masterplus, Taste_Older, Taste_Masterplus, EnFriendly_Males, Nutrition_Older, Nutrion_ECHIGH, EnFriendly_Highincome, Nutrition_Masterplus, Nutrition_Males, EnFriendly_Older, Nutrition_Highincome, EnFriendly_ECHIGH

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.177	.060		2.959	.003
	Nutrition	.031	.017	.187	1.858	.064
	Taste	-.007	.012	-.053	-.568	.570
	Price	-.038	.009	-.315	-4.304	.000
	EnvirFriendly	.017	.015	.104	1.128	.260
	Nutrition_ECHIGH	-.032	.018	-.404	-1.754	.080
	Taste_ECHIGH	.006	.014	.075	.396	.693
	Price_ECHIGH	.005	.010	.041	.466	.641
	EnFriendly_ECHIGH	.019	.017	.280	1.153	.250
	Nutrition_Older	-.016	.018	-.219	-.924	.356
	Taste_Older	.010	.014	.134	.692	.489
	Price_Older	.000	.009	-.004	-.051	.960
	EnFriendly_Older	.007	.015	.100	.433	.665
	Nutrition_Males	-.011	.017	-.135	-.621	.535
	Taste_Males	.012	.013	.158	.926	.355
	Price_Males	-.002	.008	-.019	-.213	.831
	EnFriendly_Males	.001	.015	.018	.085	.933
	Nutrition_Highincome	.015	.020	.187	.770	.442
	Taste_Highincome	-.020	.015	-.262	-1.305	.193
	Price_Highincome	-.009	.010	-.079	-.885	.377
	EnFriendly_Highincome	.009	.017	.128	.536	.592
	Nutrition_Masterplus	.003	.017	.039	.185	.853
	Taste_Masterplus	.009	.013	.120	.728	.467
	Price_Masterplus	.002	.008	.020	.232	.817
	EnFriendly_Masterplus	-.009	.015	-.129	-.620	.535

a. Dependent Variable: WTP2_Lg10

WTP3:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.614 ^a	.377	.348	.16261

a. Predictors: (Constant), EnFriendly_Masterplus, Price_Males, Price_ECHIGH, Taste_Highincome, Price_Older, Nutrition, Price, Taste, EnvirFriendly, Taste_Males, Price_Highincome, Taste_ECHIGH, Price_Masterplus, Taste_Older, Taste_Masterplus, EnFriendly_Males, Nutrition_Older, EnFriendly_Highincome, Nutrtrion_ECHIGH, Nutrition_Masterplus, Nutrition_Males, EnFriendly_Older, Nutrition_Highincome, EnFriendly_ECHIGH

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.318	24	.347	13.107	.000 ^b
	Residual	13.749	520	.026		
	Total	22.067	544			

a. Dependent Variable: WTP3_Lg10

b. Predictors: (Constant), EnFriendly_Masterplus, Price_Males, Price_ECHIGH, Taste_Highincome, Price_Older, Nutrition, Price, Taste, EnvirFriendly, Taste_Males, Price_Highincome, Taste_ECHIGH, Price_Masterplus, Taste_Older, Taste_Masterplus, EnFriendly_Males, Nutrition_Older, EnFriendly_Highincome, Nutrtrion_ECHIGH, Nutrition_Masterplus, Nutrition_Males, EnFriendly_Older, Nutrition_Highincome, EnFriendly_ECHIGH

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.193	.057		3.401	.001
	Nutrition	.022	.016	.128	1.396	.163
	Taste	-.004	.012	-.031	-.365	.715
	Price	-.047	.008	-.374	-5.650	.000
	EnvirFriendly	.048	.015	.278	3.330	.001
	Nutrition_ECHIGH	-.034	.017	-.411	-1.971	.049
	Taste_ECHIGH	-.003	.014	-.042	-.249	.804
	Price_ECHIGH	.005	.010	.037	.465	.642
	EnFriendly_ECHIGH	.031	.016	.423	1.925	.055
	Nutrition_Older	-.007	.017	-.090	-.419	.675
	Taste_Older	.001	.013	.012	.068	.946
	Price_Older	-.003	.008	-.030	-.379	.705
	EnFriendly_Older	.005	.015	.071	.341	.733
	Nutrition_Males	.001	.016	.009	.048	.962
	Taste_Males	.009	.012	.117	.755	.451
	Price_Males	.001	.007	.006	.071	.944
	EnFriendly_Males	-.011	.014	-.144	-.744	.457
	Nutrition_Highincome	-.011	.019	-.126	-.576	.565
	Taste_Highincome	-.004	.015	-.052	-.285	.776
	Price_Highincome	-.006	.010	-.051	-.624	.533
	EnFriendly_Highincome	.014	.016	.183	.849	.397
	Nutrition_Masterplus	.007	.016	.082	.430	.667
	Taste_Masterplus	.010	.012	.122	.820	.413
	Price_Masterplus	.007	.008	.074	.927	.354
	EnFriendly_Masterplus	-.014	.014	-.187	-.996	.320

a. Dependent Variable: WTP3_Lg10